

*April/1960*

- *Use of high-conversion corn syrup in candymaking*
- *Invertase and cast cream centers*
- *Notes on chocolate tempering and coating*

**Candy Packaging and Marketing**

- *Evaluating candy by taste reaction technique*
- *Column of recent broker changes*

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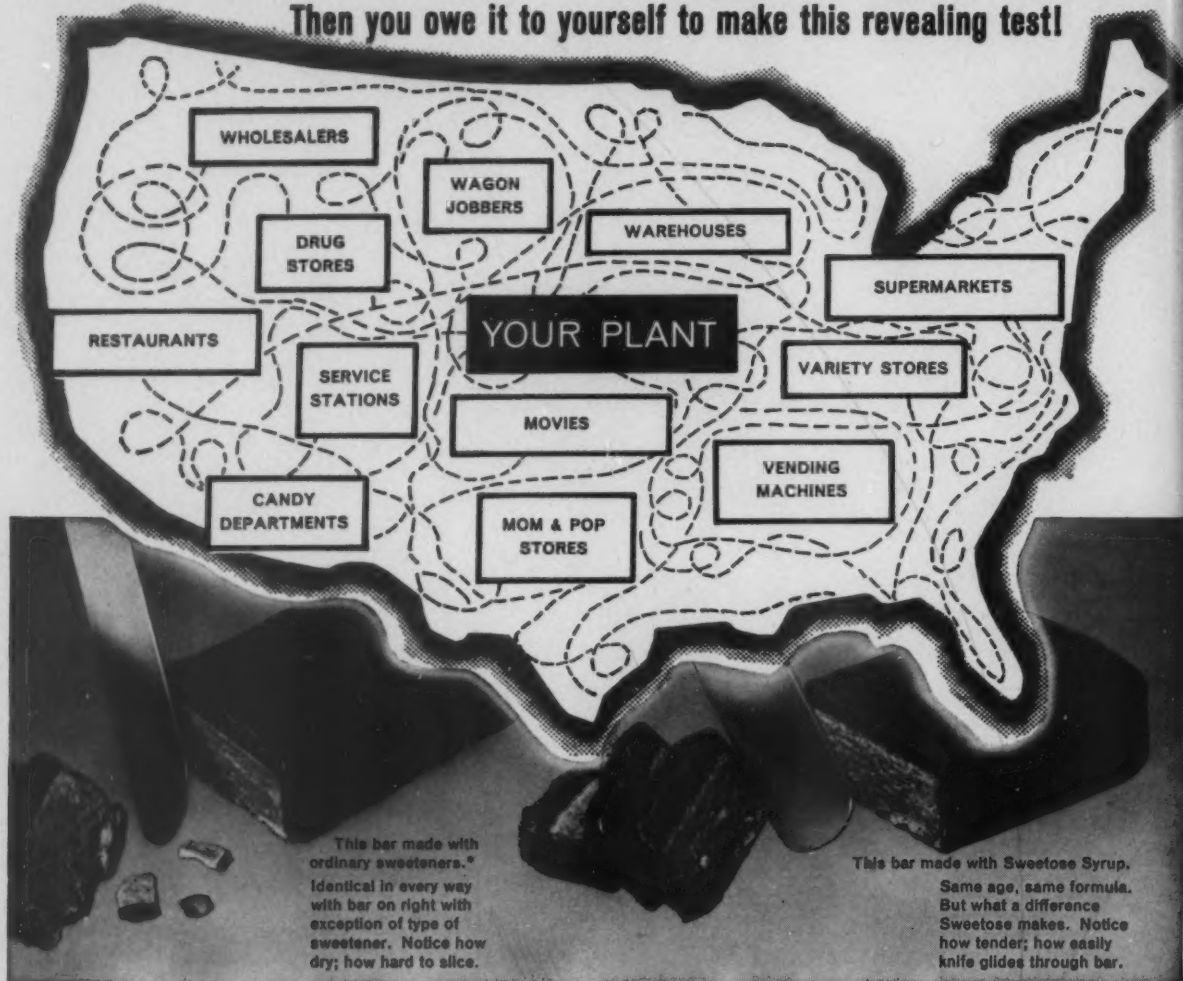
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*The Manufacturing Confectioner*

specialized publication for confectionery manufacturers

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# candy business

## Yantis resigns from Bunte

W. A. Yantis has resigned as president and director of Bunte Brothers Chase Candy Company. Mr. Yantis will return actively to the field of finance as chairman of the board of F. S. Yantis & Co., Inc., 135 South LaSalle Street, Chicago, Illinois.

## Convention forum on ingredients

The production forum at the National Confectioners Associations convention on June 8th in Philadelphia will treat the general topic of raw materials. Otto H. Windt, vice-president in charge of research at E. J. Brach & Sons, will be moderator for the forum. Talks on sugar, corn syrup, whipping agents, milk products, fats, coconut, coatings, and flavors and colors will stress time-saving and money-saving aspects of use of these various basic raw materials. Speakers include Dr. Kathryn E. Langwill, Refined Syrups and Sugars, Jud Boyle, The Hubinger Co., Dr. William Collins, Swift and Co., Dr. J. Kenneth Gunther, Gunther Products, Inc., Justin Alkonis, Paul F. Beich Co., Jack Toll, Durkee Famous Foods, Max E. Ruhremund, Franklin Baker Coconut, Norman W. Kempf, Walter Baker Chocolate, and Robert H. Pulver, H. Kohnstamm & Co.

## Testimonial for Andrew Heide

The Association of Manufacturers of Confectionery and Chocolate will honor Andrew H. Heide, president of Henry Heide, Inc., with a testimonial dinner on Tuesday, May 10th in the grand ballroom of the Biltmore Hotel, New York. Armin N. Schaper, vice president, Delson Candy Co. will serve as toastmaster and Herbert Tenzer, chairman of the board, Barton's, Inc. will be the principal speaker.

## Chicago AACT elects officers

Walter A. Meyer, Stevens Candy Kitchens, has been elected chairman of the Chicago Section of the American Association of Candy Technologists for the 1960-61 meeting year. Stanley E. Allured, The Manufacturing Confectioner, was named vice chairman of the Section, John D. Toll, Durkee Famous Foods, will be program chairman and C. M. Erickson, E. J. Brach & Sons, was named program co-chairman. G. A. MacGillivray, Geo. A. Hormel & Co. will serve as membership chairman, E. N. Heinz, Food Materials Corp., was re-elected to the post of secretary of the group and Frank Hanzelin, Schutter Candy Div., was re-elected treasurer of the Section.

## 1960 sales start slow

The report for January 1960 sales of candy shows a 4% decrease from January 1959. Both manufacturer-wholesalers and manufacturer-retailers show a decline in dollar volume. Chocolate manufacturers, however, report a 2% increase. Sales were off in New England and the Middle Atlantic area but an increase of 58% was reported for Ohio and Indiana in the East North Central area.

Package goods retailing at less than \$1.00 slumped from January 1959 by 40% while package goods at \$1.00 or over per pound showed a 9% increase.

Item	Estimated sales of current month and comparison		Percent change January 1960 January 1959
	January 1960 (\$1,000)	January 1959* (\$1,000)	
Confectionery and competitive chocolate products, estimated total.....	101,928	106,702	-4
BY KIND OF BUSINESS			
Manufacturer-wholesalers .....	83,153	88,084	-6
Manufacturer-retailers <sup>1</sup> .....	5,555	5,637	-1
Chocolate manufacturers .....	13,220	12,981	+2
TOTAL ESTIMATED SALES OF MANUFACTURER-WHOLESALEERS BY DIVISION AND STATES			
New England .....	10,304	10,606	-3
Middle Atlantic .....	25,667	29,435	-13
N. Y. and N. J. ....	12,127	14,416	-16
Pa. ....	13,540	15,019	-10
East North Central .....	29,038	30,967	-6
Ill. ....	25,380	27,751	-9
Ohio and Ind. ....	2,179	1,382	+58
Mich. and Wis. ....	1,479	1,834	-19
West North Central .....	3,739	3,134	+19
Minn., Kan., S. Dak., and Neb. ....	2,165	1,938	+12
Iowa and Mo. ....	1,574	1,196	+32
South Atlantic .....	3,891	3,819	+2
Md., D. of C., Va., W. Va., N. Car., and S. Car. ....	1,654	1,559	+6
Ga. and Fla. ....	2,237	2,260	-1
East South Central: Ky., Tenn., Ala., and Miss. ....	1,576	1,832	-14
West South Central: Ark., La., Okla., and Tex. ....	3,458	3,206	+8
Mountain: Ariz., Colo., Id., N. Mex., and Utah .....	936	904	+4
Pacific .....	4,544	4,181	+9
Cal. ....	3,440	3,165	+9
Wash. and Ore. ....	1,104	1,016	+9

\*Revised.

<sup>1</sup>Retailers with two or more outlets.

Type of product <sup>1</sup>	January 1960 Pounds (\$1,000)	January 1960 Value (\$1,000)	January 1959* Pounds (\$1,000)	January 1959* Value (\$1,000)	Percent change from Jan. 1959
TOTAL SALES OF SELECTED ESTABLISHMENTS					
Package goods made to retail at:					
\$1.00 or more per lb. ....	6,812	9,242	6,399	8,467	+6 +9
\$.50 to \$.99 per lb. ....	8,126	4,359	12,783	7,217	-36 -40
Less than \$.50 per lb. ....	14,650	3,834	17,499	4,723	-16 -19
Bar goods .....	51,599	21,723	55,177	23,161	-6 -6
5¢ and 10¢ specialties .....	11,274	5,091	10,946	4,862	+3 +5
Bulk goods <sup>2</sup> .....	18,164	4,700	19,319	5,355	-6 -12

\*Revised.

<sup>1</sup>Selected group of large manufacturer-wholesalers and chocolate manufacturers report sales by type of product. Companies reporting such detail account for approximately half of the total dollar sales of manufacturers.

<sup>2</sup>Includes penny goods.

Data from monthly "Current Industrial Reports" of the U. S. Department of Commerce.



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## Mrs Williamson dies

Mrs. May J. Williamson co-founder with her husband of Williamson Candy Company, Chicago, passed away on March 17th at Santa Barbara, California. Mrs. Williamson had been active in industry conventions and functions over the past several years.

## Kramsky VP at Farley

Irwin N. Kramsky has been named vice-president, production at Farley Manufacturing Company. Previous to this appointment Mr. Kramsky was plant manager at Farley.

## 1959 candy vending figures

The number of candy vending machines in use rose from 543,500 to 569,100 in 1959 and the dollar volume of sales through these machines increased by \$27 million in the same period. 85% of the sales in candy venders are of candy bars and dime bars account for 32% of this volume. Other items vended in candy machines are gum, cookies and other related items. These figures are from the 14th annual *Census of Vending* published by *Vend* magazine.

## Edward F. Kelley dead

Edward F. Kelley, president of Goelitz Confectionery Company, died on March 3rd at the age of 88. Mr. Kelley founded the firm in 1898 with the late Adolph Goelitz and was active in the business until shortly before his death. He had been a member of the National Confectioners Association for nearly fifty years.

## Charms founder dies

Walter W. Reid, Jr., founder and chairman of the board of the Charms Company passed away in Allenhurst, New Jersey.



Hans Dresel, president of the American Association of Candy Technologists, presents the gavel and block to Lewis Weil (left), president of the newly organized Northern California Section of AACT. This Section was host to a special meeting of technologists at the Western Candy Conference on March 10th.



Golfers at the Western Candy Conference are Bob Voss of Voss Belting, Wellington McDonald and Neil McDonald of Mrs. McDonald's Chocolate Co. and Frank Timberlake of Guittard Chocolate.

## Western Conference hits candy tax

Delegates at the Western Candy Conference in Berkeley, California unanimously passed a resolution urging the California state legislature to remove discriminatory sales tax on candy. A bill to eliminate the tax, which does not apply to baked goods, ice cream or other sweet delicacies, has been introduced and the Conference praised the sponsors of this bill.

Plans for the 1961 conference will proceed under the direction of Russell D. Albers who was chosen chairman of next year's meeting which will be held in Los Angeles.

## New execs at Gold Medal

Mr. Harold M. Schiering has been appointed general plant manager of Gold Medal Candy Corporation and Mr. William Zoeller has been named maintenance engineer. Mr. Schiering was formerly associated with Up-to-Date Candy Manufacturing Company and the Quaker Maid division of A&P. Mr. Zoeller was also with Up-to-Date Candy Mfg. Co. before moving to Gold Medal.

## Vincent Heide exec VP

Vincent H. Heide, formerly vice president and general sales manager of Henry Heide, Inc., has been elected executive vice-president of the company which was founded by his grandfather in 1869.

The appointment of Eugene E. Sullivan as general sales manager and Robert A. Lewis as plant manager has also been announced by Andrew H. Heide, president of the company.

## Houghland leaves Peter Paul

Roy Houghland, vice president in charge of the Frankfort, Indiana plant of Peter Paul has announced his resignation. Mr. Houghland has been with Peter Paul for nearly twenty years and has served the company in its Oakland, California, Dallas, Texas and Puerto Rico plants.

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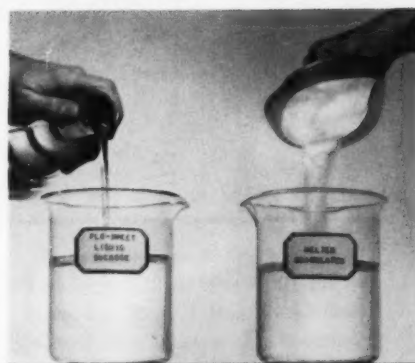
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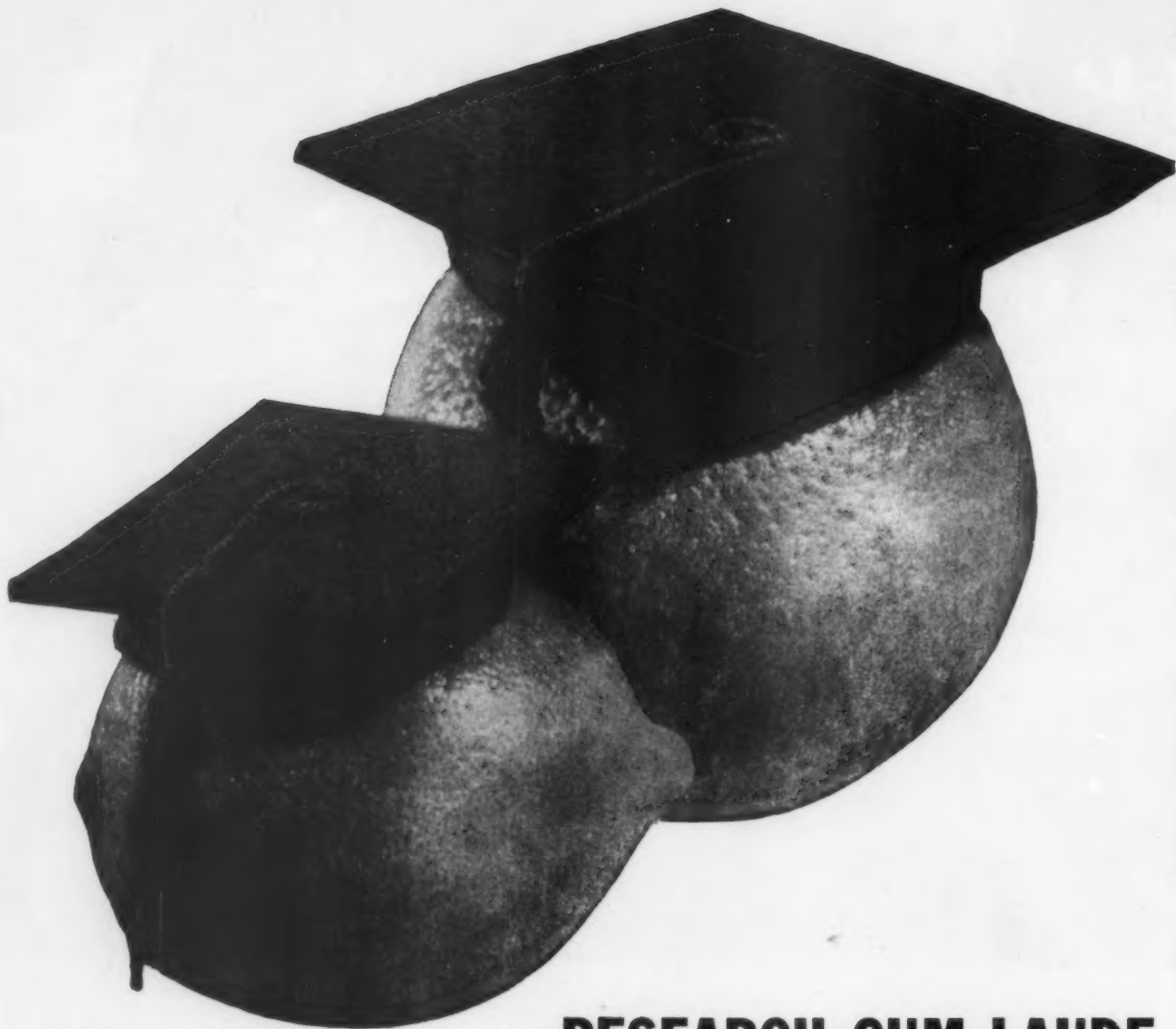


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# the Manufacturing Confectioner

with International Confectioner

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April, 1960

Volume XL—Number 4



Edited and Published in Chicago

The Candy Manufacturing Center of the World



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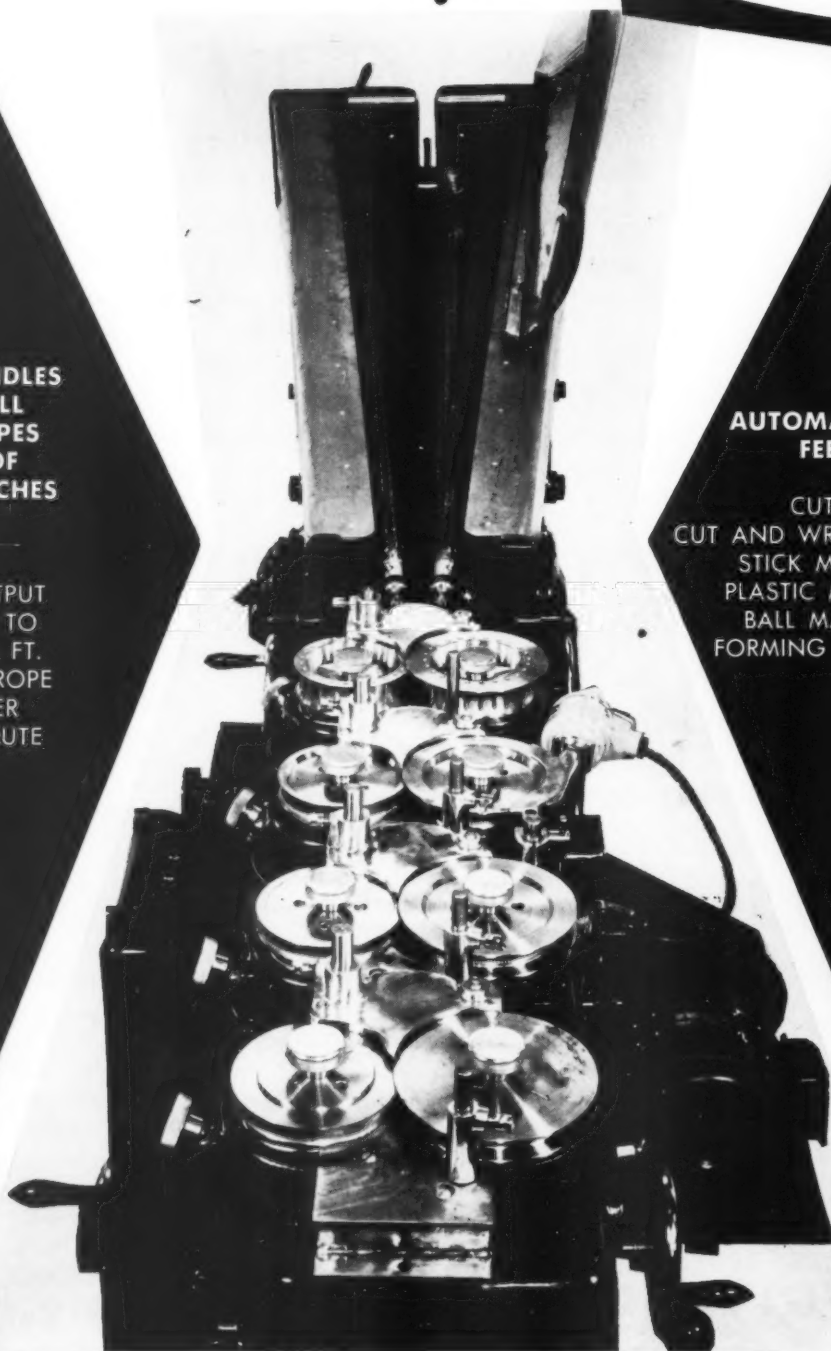
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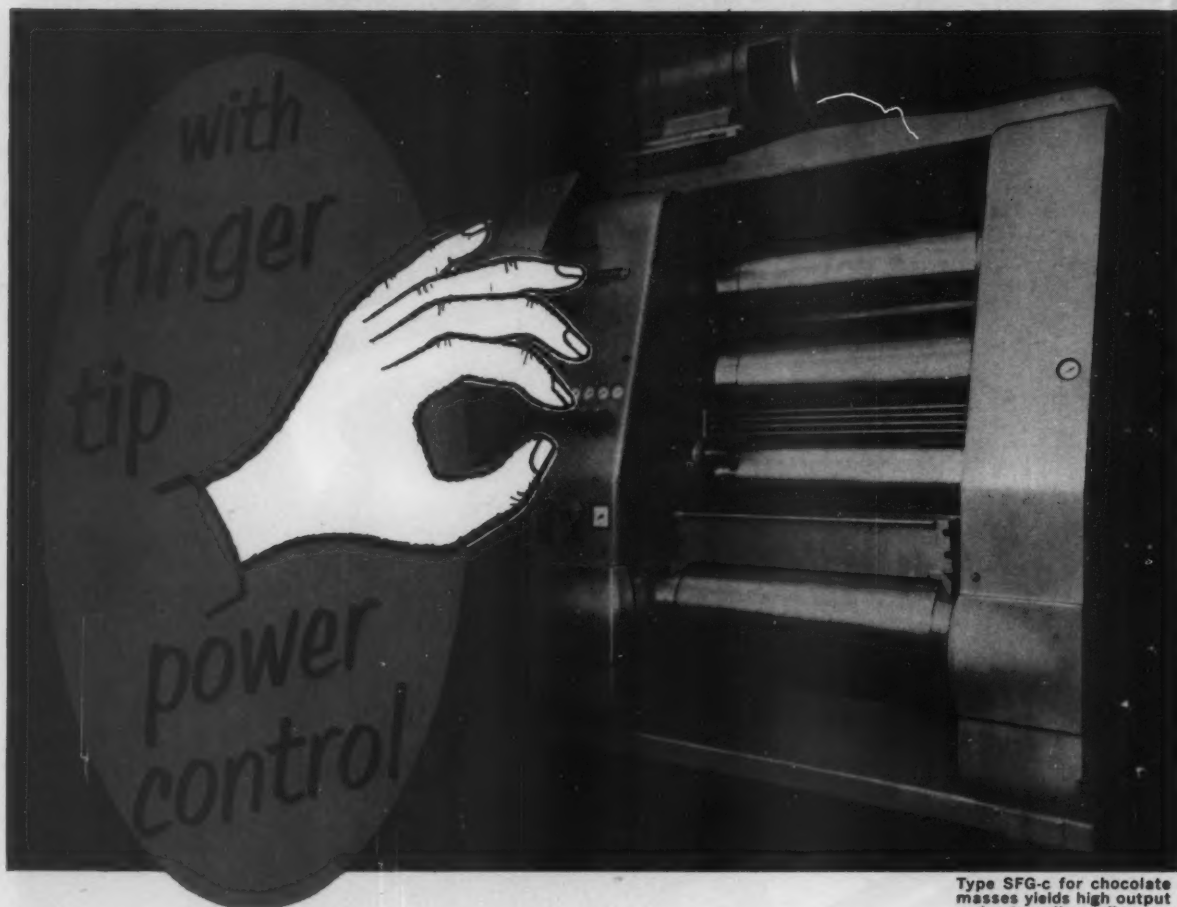
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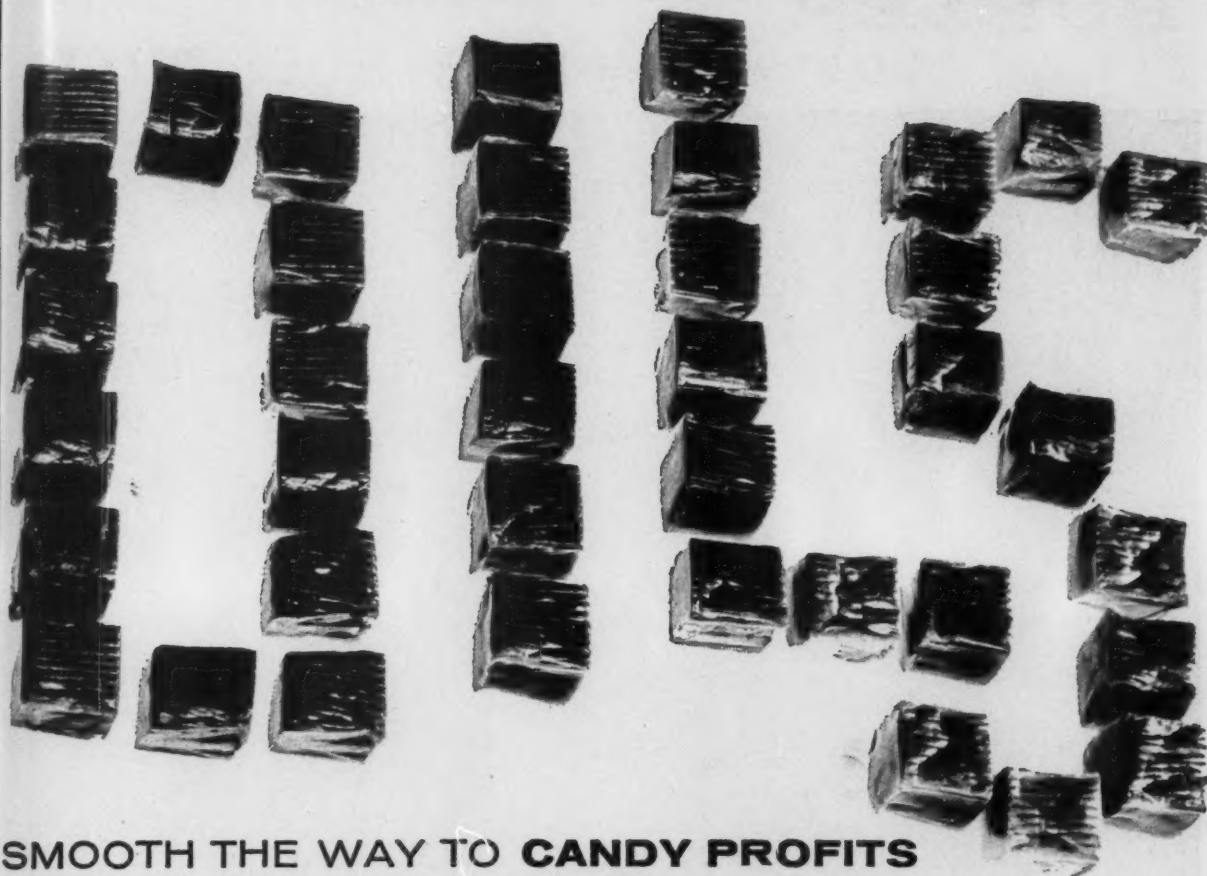
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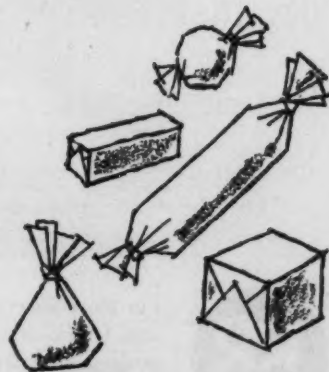
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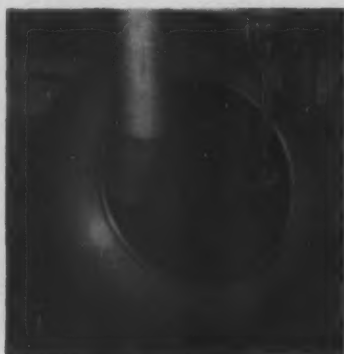
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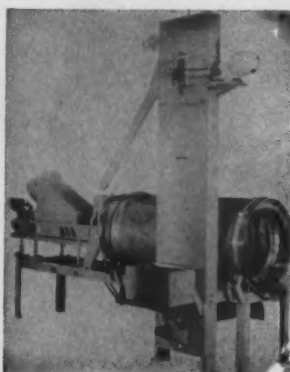
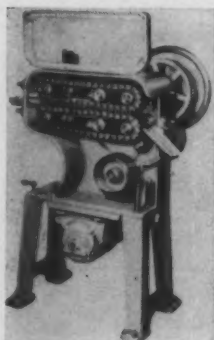
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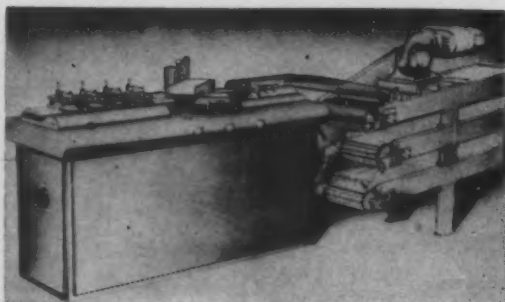
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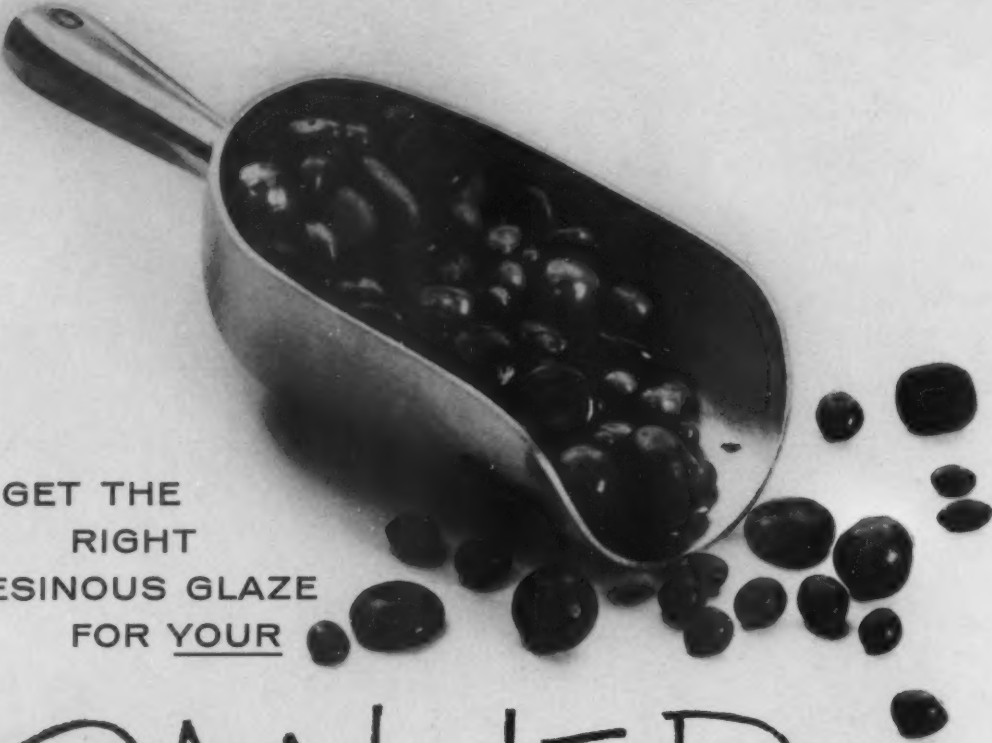
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## Notes on chocolate tempering and coating

BY TOM NEWTH  
Consultant

**I**n a talk last year before the New York Chapter of A.A.C.T. I laid the blame for some of our problems on the equipment we are forced to use. For some years now we have been pointing out the inefficiencies of enrobers, cooling tubes, etc. to the makers, with little interest on their part, as no changes have been made to date of which we are aware.

It has been gratifying to note that the technique of handling coatings which we have recommended over the years, has met with acceptance in both America and Europe and is in general use.

This technique contemplates the tempering of a seed bed of coating into which is drip fed a virgin or untempered coating. This virgin coating is fed at the same speed in which the tempered coating is being used up. Now, if this technique is followed to the letter and at the temperatures suggested, we find an undisturbed continuity of operation can be maintained all day long. We will also note that the use of steam or water for heating or cooling will be little needed.

The theory behind this is that the seed bed will temper the coating being fed into it and the virgin coating will act as a barrier to advancing crystallization. In this event, we have a coating that maintains its fluidity, and it becomes an easy matter to control the amount of coverage or coating we put on a pound of centers. This makes coating far easier than heretofore.

If all this be true, then we have a right to assume that coatings will find their own crystal balance if permitted to do so. I want to cite an incident which corroborates this last statement. I was called into a plant that was experiencing considerable trouble with dull coatings and short shelf-life

on their products. I found they were using 16" enrobers filled to the top with tempered coating. They were not using the drip feed, but had kettles of tempered coating ready to be added when it was needed. This coating in the enrober was even then in an advanced state of crystallization and, of course, would continue to get worse as time went on.

To correct this condition, I melted or reheated a kettle of coating to 120°F. and slowly cooled it to 94°F. and stopped the agitation and held it at that temperature. We then drew out of the enrober all but about 50 lbs. of this thick overseeded coating. We then hung a container of the 94°F. coating we had prepared on the machine and started drip feeding. The immediate results were no better than they were getting but in a matter of ten minutes a very noticeable change took place and soon the results were very good. We found too, that when the new coating had replaced the old it was necessary to raise the tunnel temperature to get an even better gloss.

This example, I think proves the efficiency of the drip feed method of handling coatings.

You will note that we tempered coating only once in this method and kept a low level of coating in the enrober and that additional coatings were tempered automatically as they were added to the seed bed. This reduced to a minimum the variables generally met in the old method of operation.

We now have a suggested new method of enrobing in which the coating once used is detempered and retempered before being used the second time for dipping. This was evidently built

around the theory of one of the writers of the past who suggested this method but admitted it was not practical at that time. This suggestion was made before the advent of the drip feed system.

When we consider that the major difficulties experienced in handling coatings is in proper tempering, the fallacy of detempering coatings after being used but once can easily be recognized. The many variables that affect temper are multiplied many times with such a procedure.

For this reason I cannot agree that such a technique has any merit whatever. I feel that it calls for more labor and supervision to make it work and our interest lies in making procedures more simple and less laborious. In our industry we do not have the leeway to add to our costs. With a selling price which seems to be fixed, and which if we attempt to raise, is reflected in lower sales, we need the inplant savings in order to make a profit today.

Caution should also be exercised in the purchase of cooling units to be used in chocolate work. The term automatic is too often applied to equipment that is but semi or partially automatic. As an example, machines are sold for tempering that claim to temper X number of pounds per hour. No mention is made of the temperature of the cooling medium needed to reach this figure. It makes considerable difference, however, in the temper of the resultant product whether this be done with 65°F. water or ice water.

When seasonal changes in water temperatures occur, these machines do not automatically adjust to them, with sometimes dire results. Operators can also be blamed for some of the poor workings of such machines when they attempt to get more out of the machine than it is intended to produce.

What we hope to bring out in this talk is that problems in the handling of coatings are mostly man made. A coating will handle the same day after day if it is treated in the same manner day after day. Let us recognize that in tempering coatings we are dealing with a product that follows a natural law of crystallization. All we need do to get good results is to duplicate a technique or procedure; there is no need for good work one day and poor the next. We must blame ourselves if this happens, and not the coating.

We must also point out that in addition to a good tempering technique an operative technique is essential for good work.

The most vulnerable points on enrobers are those where goods are transferred from one belt to another and the cold slab. Unless we understand how to adjust these, considerable distortion occurs and the results are poor. Detailer settings are very important and where possible these should be made adjustable to take care of centers of varying sizes. Their function is to remove tails from the centers and not to be used as transfer rods. These should be set close to the wire belts as possible so they will keep clean and not build up in circumference by coating adhering to them. To help in this, warm air around them is a great aid.

When detailer settings are correct, the gap between belts can be minimized, making possible easy transfer of centers. Unless we have such a setting small pieces and miniatures either nose or tail dive onto the detailing rod and the front or rear of the bottom is wiped free of coating. This allows the center to show at these points and they are prone to leak also.

Machines are provided with adjusting bolts to raise or lower belts at these transfer points and should be utilized. Here again, we should watch for distortion and not permit the dipped pieces to slide backward because elevations are too high.

### The cold slab

We have found in our experience that the cold slab is the least understood of any of the adjuncts of the enrober. Most operators seem to believe that when bottoms are pulled off of the prebottomed piece the slab is either not cold or long enough. Many times I have seen centers winding around with the belt and the operator complaining the cold slab was too short. It is more than likely the reverse is the case and the centers are actually frozen to the belt.

We believe the correct method of operating a cold slab is to set the compressor to cool the slab to 45°F. and chill the coating as quickly as possible; then follow the center to where it is first stuck to the belt. When you try to pick up a center and the belt comes up with it, the bottom is sufficiently cooled.

From this point to the enrober, corrugated board should be put under the belt and on top of the cold slab. This will insulate the further cooling of the bottom. As the goods travel over this insulation the bottom will be warmed again, and will readily peel off of this belt and proceed through the enrober. Where a center is handled in this manner the second bottoming which takes place in the enrober spreads smoothly over the piece and if the wire belt is warmed with the extension heaters will emerge from the tunnel free of wire marks.

Wire marks on bottoms are the result of cold at some point, either cold centers, too long on cold slab or from the wire belt being too cold.

Another difficulty experienced occasionally is bubbles on the finished goods. These are unsightly especially if they are broken in packing.

The cause of bubbles is agitation and where this is excessive, should be reduced to a minimum. Melting kettles going more than 15 R.P.M. or high speed pumps are the most frequent cause of bubbles.

In hand dipping, girls who excessively puddle or who slap the chocolate with cupped hands create bubbles. Dippers should be taught to rub the coating rather than slap it and a noticeable difference will occur.

In enrobing, a means of eliminating them is to change flow pans from a curtain flow to a multiple stream flow.

*This paper was read before the Boston Section of the American Association of Candy Technologists on March 8th, 1960.*

## Using high-conversion corn syrup for candy making

C

orn syrups are made from refined corn starch by a chemical process called hydrolysis or "conversion" which consists of breaking the long starch molecules into shorter molecules with the chemical combination of a molecule of water at each break in the molecular chain. An average corn starch molecule has a chain length about 250 times that of a dextrose or corn sugar molecule. If the conversion of starch is carried to completion, all the starch molecules are broken down into dextrose. If conversion is stopped before it is complete the resulting syrup will consist of a mixture of saccharides, containing dextrose and maltose, along with higher saccharides that have molecules made of three, four, and higher multiples of the dextrose unit.

The approximate carbohydrate compositions of regular, intermediate, and high conversion corn syrups are shown in the following table:

Type of Syrup		Percent Saccharides			Higher
		Monosaccharides	Disaccharides	Trisaccharides	
Regular	19	14	12	55	
Intermediate	30	18	13	39	
High-Conversion	39	33	12	16	

By L. G. TREMPER  
A. E. Staley Mfg. Co.

Dextrose and maltose, which are the mono and disaccharides of the table, as well as certain other sugars such as lactose, are called "reducing sugars" because they will react chemically with hot Fehling's Solution, reducing the copper in this solution from one chemical form to another. If a Fehling's Solution is standardized in strength against pure dextrose this solution can be used to measure the copper reducing action of any starch conversion mixture or syrup in terms of the equivalent quantity of pure dextrose required to produce an equal copper reduction. This reaction, because it offers a rapid and convenient means of measuring the extent of conversion in a corn syrup, is used to classify corn syrups by type according to their dextrose equivalent or D.E. values. Dextrose equivalent, then, is defined as the total content of reducing sugars on a solids basis, determined as dextrose.

Corn syrups with a D.E. of 28 to 38 are classed

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Editor's note: "High-conversion" as used in this article refers to an acid and enzyme dual-converted corn syrup.



as low conversion syrups. Those with a D.E. of 38 to 48 are called regular syrups. Those with a D.E. of 48 to 58 are intermediate-conversion syrups, and those with a D.E. of 58 and up are high-conversion syrups.

As the D.E. of a corn syrup is increased, various physical properties of the syrup change. Those properties which change and are of greatest interest to the candymaker are the following:

1. **Sweetness.** As the D.E., and the dextrose and maltose contents of a syrup increase, the syrup becomes sweeter. Just how much sweeter depends on the conditions under which sweetness are measured. For example, compared with 100 for sucrose, the common values listed for the sweetness of the various corn syrups are 40 for regular syrup, 50 for intermediate syrup, and 60 for high-conversion syrup. However, these values are based on comparison of water solutions at 12½% concentration. At higher concentrations, the relative sweetness values of corn syrups are greater. Thus, at 40% concentration, high-conversion corn syrup has a sweetness value of 80; intermediate, 68; and regular, 55.

The higher sweetness of high-conversion syrup is useful for raising the sweetness and flavor quality of candies which are relatively high in corn syrup content. Yet the use of high-conversion syrup does not impart excessive sweetness to the sweeter types of candy. Careful tests<sup>1</sup> have demonstrated that a solution containing two parts of sugar to one of regular corn syrup and a total solids concentration of at least 40% tastes as sweet at that same concentration of sugar alone. Replacement of the regular syrup with high-conversion syrup does not raise the apparent sweetness of this mixture. Similarly, replacement of regular with high-conversion syrup in candies of high sucrose content does not increase their apparent sweetness.

If these remarks on sweetness seem confusing, it must be recalled that sweetness is an organoleptic property depending on taste sensations alone for measurement. In dilute solutions or in products low in sweetness, slight differences in sweetness are easily perceived; whereas, in sweeter products, and at high solids, considerable manipulation of sweetener is possible without affecting the over-all taste.

2. **Viscosity.** The viscosity of a corn syrup depends not only on the syrup temperature and concentration but also on the extent of its conversion. The higher the degree of conversion, the lower the viscosity. Thus, at 100°F. and 43° Baume, regular corn syrup is approximately two and one-half times as viscous as high-conversion corn syrup.

The low viscosity of high-conversion corn syrup makes this syrup easy to pump or otherwise handle, makes it whip readily in the

making of marshmallows and frappe, and results in a more tender texture in all candy than is obtained by use of the same proportion of a more viscous syrup. Moreover, the low viscosity of this syrup results in a faster solution of the candy during eating and thus a faster release of flavorings and a more intense flavor sensation.

3. **Solids Concentration.** As the D.E. of a corn syrup is increased, the solids content of the syrup at any given Baume increases. As conversion progresses more water becomes chemically combined with the solids of the syrup. Because this water is less dense than the solids of the mixture, the more water that becomes chemically combined, the less dense the solids become. Therefore, at a higher D.E. more solids are required to produce any desired density or Baume of syrup. This difference is sufficient to have a significant effect on the cost of the syrup calculated on a solids basis. Standard solids contents of the various 43° Baume syrups are 80.3% for regular, 81.0% for intermediate, and 82.0% for high-conversion syrup.
4. **Hygroscopicity.** As the D.E. of a corn syrup is increased, the hygroscopicity and the ability of the syrup to resist loss of moisture increase. Relative moisture-holding abilities of the syrups are shown by their equilibrium moisture contents, or the moisture levels at which they will arrive if exposed long enough at a given temperature and humidity. These values<sup>2</sup> for 75° to 85°F. and 45% relative humidity are 9.5% for regular corn syrup, 11.0% for intermediate syrup, 12.0% for high-conversion syrup, and 15.0% for invert sugar. Thus, high-conversion corn syrup is approximately the equal of a 50-50 mixture of regular corn syrup and invert sugar in moisture retaining properties.
5. **Boiling Point.** As the D.E. of a corn syrup is raised the boiling point of the syrup at any given concentration is raised. A general rule of physical chemistry is that the boiling point of a solution is raised in proportion to the molecular concentration of the solids dissolved in it. The average weight of the saccharide molecules in high-conversion corn syrup is only about 65% the weight of those in regular syrup.<sup>3</sup> Therefore, at any given solids concentration, the molecular concentration of high-conversion corn syrup is about 1.5 times that of regular corn syrup. Because of this, whereas regular syrup at 80% solids concentration boils at 226.3°F., intermediate syrup at this concentration boils at 228.9°F., and high-conversion syrup at this concentration boils at 230.5°F. Candies made with high-conversion syrup therefore must be cooked to a higher temperature to obtain the desired concentration.

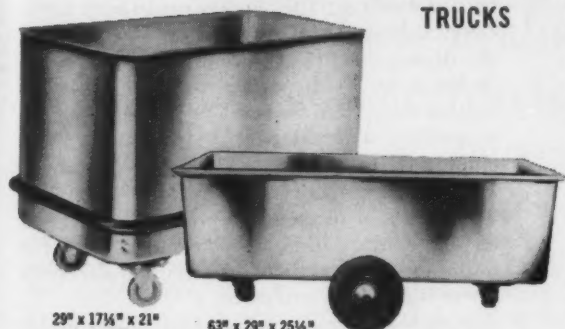
The required change in cooking temperature depends on both the proportion of corn



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syrup in the batch and on the total concentration desired in the product. As a general rule candies with regular cooking temperatures of up to 250°F. should be cooked 1° to 2° higher when made with high-conversion syrup. Increases of from 2° to 6° may be required for candies with regular cooking temperatures of over 250°F.

6. **Effect in controlling sugar crystallization.** Although the statement is commonly made that the high molecular weight sugars or so-called "dextrines" of regular corn syrup are more efficient than the lower molecular weight sugars of high-conversion syrup for controlling sugar crystallization, this appears to be true only in hard candies. The reason is that moisture absorption plays a part in the graining of hard candies, and the higher viscosity and lower hygroscopicity of regular corn syrup reduce moisture absorption.

In lower cooked candies and in partially grained candies such as creams, grained marshmallows, and short nougat, a high-conversion corn syrup used on a solids basis to replace regular syrup will produce the same grain or the same control of graining as regular corn syrup.

7. **Effects in supplying wholesome, nutritious, soluble food solids at minimum cost.** All the standard types of corn syrup are equally wholesome and nutritious. Corn syrups supply solids at the lowest cost of any ingredient capable of being used in high percentages in candymaking. However, high-conversion syrup, because of its higher concentration at a given Baume, can provide solids at a lower cost than regular corn syrup.

Each type of corn syrup has advantages for certain candy applications. What, then, are the applications for which high-conversion syrup is particularly adapted?

1. **Starch gums and jellies**—Starch gums and jellies made with high-conversion corn syrup are less viscous and can be deposited with less stringing than candies made similarly with lower D.E. syrup. These candies remain softer and more tender in texture than gums and jellies made with lower D.E. syrup, first because they retain moisture better, and second because, even when moisture is lost, the viscosity of the high-conversion syrup is sufficiently low that it does not impart excessive toughness.

Experience with high-conversion syrup and comparison of many samples of commercial candies indicate that under most conditions of production and marketing, starch jelly candies with a total dextrose equivalent in the range of 29 to 32 have a higher quality and a longer shelf life than similar candies made outside this range. This optimum D.E. of the candies can be readily obtained by using from 55 to 60 parts of high-conversion syrup (43° Baume) with 45 to 40 parts of sugar.

2. **Marshmallows**—Marshmallows made with high-conversion syrup have better moisture retention and a longer shelf life than marshmallows made with an equal content of a lower D.E. syrup. However, because of this better moisture retention, candies made with high-conversion syrup dry more slowly in starch molds or in trays than candies made similarly with other syrups. To accomplish drying to the proper moisture level and to prevent stickiness or sweating, the candies made with high-conversion syrup may require adjustments in the drying conditions or in the length of the drying time. With proper controls, high-conversion syrup can be used to produce superior quality marshmallows.

3. **Nougat**—High-conversion corn syrup improves the lightness, tenderness, moisture retention, and shelf life of short or grained nougat. In chewy nougat, high viscosity is helpful for imparting a chewy texture, so regular corn syrup is generally preferred.

4. **Caramels**—Caramels made with high-conversion corn syrup cook faster, can be deposited with less stringing, and are shorter and more tender in texture than caramels made similarly with regular syrup. Wrapped caramels made with high-conversion syrup have less tendency to dry and harden with age than those made similarly with lower D.E. syrup. However, wrapped caramels may be too soft in texture to hold their shape, particularly in warm weather, unless some adjustment is made in the formula. Soy protein concentrate has been found most effective for adding the desired body to such caramel without detracting from the advantages of tender texture, longer shelf life and improved flavor imparted by high-conversion syrup. As little as 1-1/2% by weight of soy protein concentrate cooked in the caramel batch is sufficient to produce a significantly firmer body and the required standup quality to caramels made with high-conversion syrup.

5. **Fudge**—Comparative tests have shown that typical fresh fudge squares made with high-conversion syrup lose approximately 20% less moisture during 96 hours of exposure to air of 66% humidity than fudge squares made similarly with regular corn syrup. High-conversion syrup is therefore well adapted to use for prolonging the shelf life of fudge. However, as in the case of caramels, fudge made with high-conversion syrup may be too soft and too pliable unless an adjustment is made in the formula. Here, too, soy protein concentrate at a level of 1% to 1-1/2% by weight is effective for imparting additional body at minimum cost without detracting from advantages gained with high-conversion syrup.

6. **Frappe**—High-conversion corn syrup is the only sweetener required for production of a light, stable, good flavored frappe. The vis-

*Continued on page 55*

### Candy products evaluated through use of the taste reaction technique

By Wayne P. Hansen

**T**he use of the taste reaction technique to measure consumer acceptance or its lack is especially adaptable to new product development in the confectionery industry. It is a method which evolved from application in the selection of suitable job applicants in industry. In this paper its applicability for candy taste testing will be supplemented by its relevancy in measuring brand and company images held by typical confectionery consumers.

The taste reaction technique dramatically illustrates through graphic analysis the *pattern* of acceptance of each candy characteristic or attribute evidenced by taste testers. It goes beyond the paired comparison method which merely rates control and test confections. Although taste testers are asked to explain why they rated each sample as they did and why they prefer one over the other in paired comparison testing, specific areas of inquiry of vital interest to the confectioner may be glossed over.

Taste testers are first asked to:

"Please rate this candy sample for each of the characteristics listed below with one of the seven ratings shown. Place a check-mark below that rating you have chosen on the line to which it pertains. As an example, on the first line you have a choice of seven ratings of which you should pick one—

Extremely sweet	Extremely bitter
Very sweet	Very bitter
Somewhat sweet	Somewhat Bitter
Neither bitter nor sweet	

Note that there is no standardized order as far as listing all positive characteristics on one side of the scale and all negative characteristics on the other. This is partly done to determine what taste testers consider to be positive or negative attributes of a test candy sample. Any taste tester tendency to check down the left hand margin and loading or biasing a whole series of positive characteristics is also avoided. In the graphic analysis presented to management positive and negative characteristics are grouped to the left and right, respectively. The arithmetic average score described below is reversed for those characteristics which have been switched.

The total number of candy taste testers who chose one of the seven ratings for an attribute shown on the scaler rating above is multiplied by the weight assigned that rating which varies from seven down to one. The resultant weighted scores for each of the seven ratings are added together for each candy characteristic shown. This total weighted figure is divided by the number of candy taste testers participating in the test. This quotient is the weighted average of all the responses given by taste testers for any candy characteristic. It may vary from seven down to one, usually coming up as a figure such as 4.5, 6.2, 2.9, 3.7, etc.

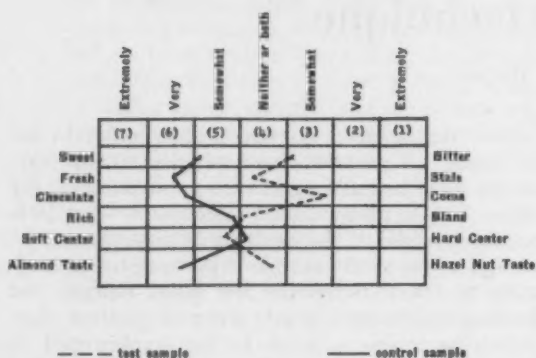
The semantic profile graphic analysis of taste tester candy reactions is then plotted. The rating scale with its list of candy characteristics is reproduced as in the original illustration. This rating scale was that used by taste testers in checking off their various evaluations of the confection. The

	Extremely	Very	Somewhat	Neither or both	Somewhat	Very	Extremely	
	(7)	(6)	(5)	(4)	(3)	(2)	(1)	
Sweet								Bitter
Stale								Fresh
Chocolate								Cocoa
Rich								Bland
Soft Center								Hard Center
Almond Taste								Hazel Nut Taste

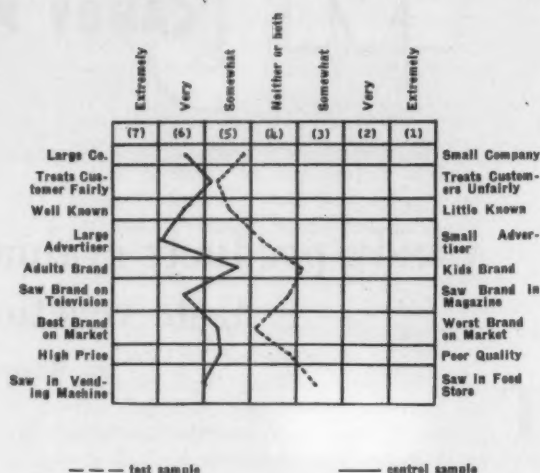


weighted average rating for each taste reaction is plotted on its respective line for both the test candy and the control candy. Each of these plotted, weighted averages is connected down the scale with a dotted line for the test confection and a solid line for the control confection. This procedure is shown in the graphic analysis presented below.

**Candy Taste Reactions Graphed  
Semantic Profile Analysis**



**Company—Brand Image Graphed  
Semantic Profile Analysis**



different groups which make up the total taste test panel, the criterion of significance remains at 5%, although it takes a larger difference between scores for the test and control confections to reach such a level.

Not only should the confectionery manufacturer know how well the test candy fares in relation to the control candy for various taste reactions, but it should also evaluate the relative importance of each one of these factors as evinced by taste testers. Thus, while one confection may be coated with chocolate and the other with cocoa and the difference is noted by taste testers, the importance they attach to this differentiation is the prime taste consideration. And, if this one dissimilarity proves of major consequence, in what direction does taste reaction tend?

In order to properly evaluate the degree of importance of taste characteristics and other factors which may influence the selection of a confection by a buyer the following rating scale has been devised. Note the qualifying feature of the scale which assesses the direction of importance. Taste testers are asked to:

"Please rate the degree of importance of the taste characteristics and buying factors listed below. We would also like your view as to why these factors are so rated."

	Extremely Important (4)	Very Important (3)	Somewhat Important (2)	Not Important (1)
Chocolate vs. cocoa taste				
Which do you prefer?	Why? _____			
Degree of candy sweetness				
Amount of sweetness desired:	Light _____ Medium _____ Heavy _____			
Filled center for a confection				
Type of filling most liked	Why? _____			
Does the brand make selection:				
Why? Makes favorite candy _____; Reputation _____; Other _____				





Printed  
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Complete  
Overwrap



The package above has a removable band. It can be stripped off after Christmas . . . eliminates out-of-date stock . . . gives retailers an extra reason for preferring to stock your brand.

## How printed cellophane can help you sell more candy next Christmas

**The man to see:** Your Du Pont Authorized Converter. He's a master of holiday packaging designs that will get better display for your product . . . more sales . . . and bigger profits. He'll show you how sparkling overwraps of printed cellophane dress up your package for Christmas sales . . . remove easily for post-Christmas selling.

No other packaging material gives you so many advantages for Christmas packaging: Crystal-clear transparency . . . superior protection . . . adaptability to almost any package construction (overwrap, bag or direct wrap) . . . and efficient, high-speed machine handling. All adding up to the best package at the lowest cost. So see your Authorized Converter now and get your package in a Christmas selling mood. E. I. du Pont de Nemours & Co. (Inc.), Film Department, Wilmington, Del.



Mr. Julian T. Barkdale, V.P. Marketing, Stephen F. Whitman & Son, Inc. says: "We've found there's nothing like printed cellophane for all-around holiday packaging advantages. Adaptability . . . economy . . . colorful sparkle that really pulls in sales!"



BETTER THINGS FOR BETTER LIVING  
... THROUGH CHEMISTRY

**D**U PONT  
cellophane

The major change or addition to the candy being tested should be incorporated by the manufacturer in the above questioning.

Much discussion can be found in the general trade press today concerning the importance that manufacturers place in the image that their advertising and public relations develop in the minds of consumers. The alert confectioner can ascertain through use of the semantic profile technique just how it rates with the consuming public. The public image of a confectioner can have a substantial effect on its present and future rate of sales. Such an image held by confection users may stem not only from the confectioner's advertising and public relations, but also from the product(s) it markets, the price and weight for which the brand(s)

sells, its availability in important channels of distribution, packaging, etc.

The following semantic scale which is given consumers to evaluate can go far in determining if a confectioner can find areas for improvement in its public image which has such an important role in the rate of sale of its products. The actual plotting for a typical set of results gained from the use of this scale can be seen on the semantic profile graphic analysis previously illustrated. This type of questioning may accompany regular taste tests only if it comes at the end of the interrogation. It is normal practice to make them separate studies because of the different objectives which are being sought. The respondent is asked to:

"Please rate confectioner X (and Y) for the following factors—

Extremely	Very	Somewhat	Neither	Somewhat	Very	Extremely
(7)	(6)	(5)	(4) or both	(3)	(2)	(1)

Large company

Small company

Treats customers fairly

Treats customers unfairly

Little known




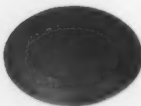
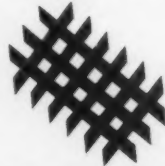


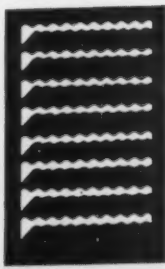
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Large advertiser

Small advertiser

*Confex*

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CONFECTIONS  
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<p>CIRCLE ANY SIZE</p> 	<p>?</p> <p>WHAT DO YOU NEED...</p>	<p>CANDY OR COOKIE PARTITION</p> 
<p>CHOCOLATE OR WHITE CANDY DIVIDERS</p> 	<p>BOX SHELL</p> 	<p>DIE-CUT DIVIDER AND LAYER BOARD</p> 

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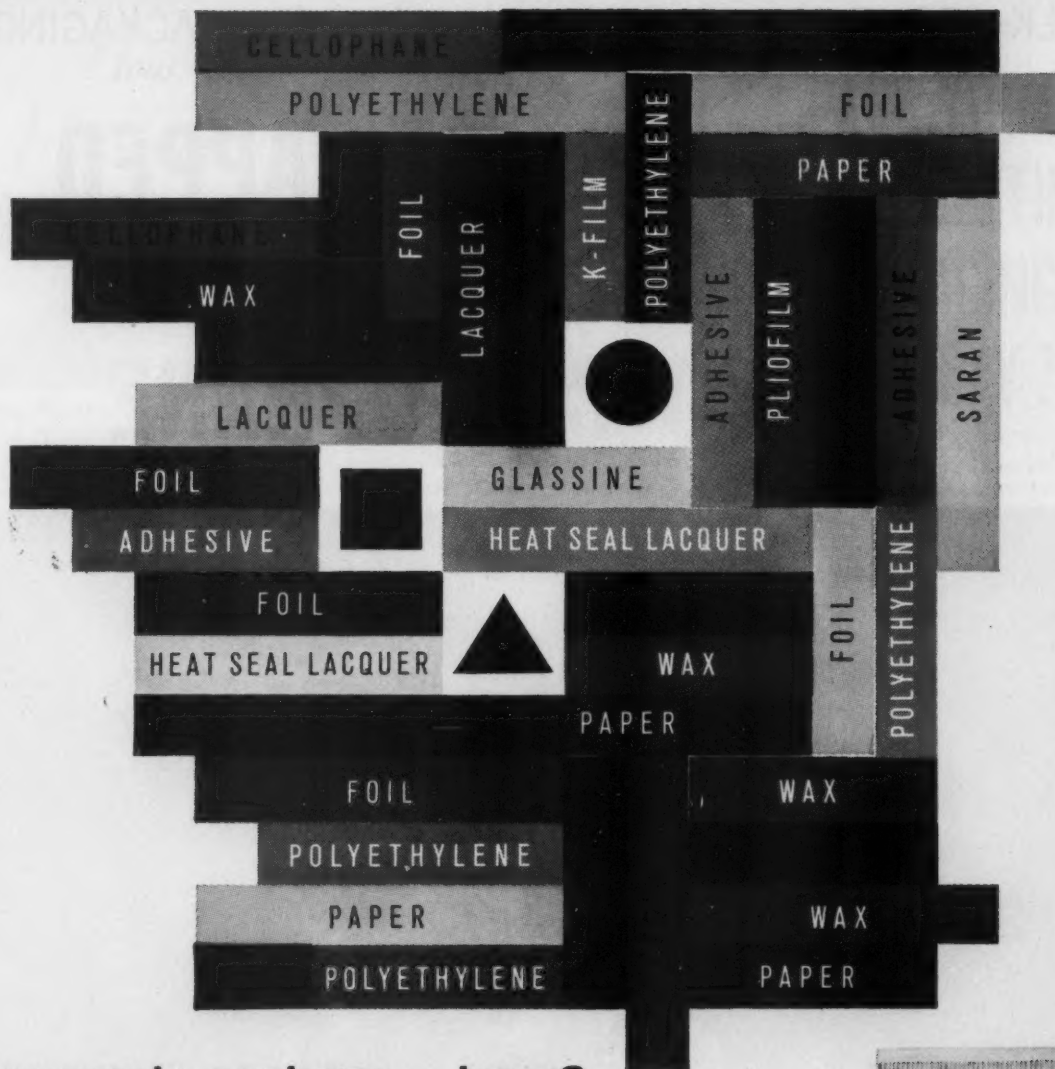
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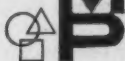
## Your candy package ... here?

Yes, here! A Milprint custom combination of two or more of these materials can give your product — such as the delicate Vernell's Butter Mints shown — the extra protection it needs, along with more sales appeal with economy of cost. Pioneer in flexible packaging, Milprint approaches your package problem with an open mind. There's no attempt to steer you toward any particular material or process because *Milprint offers you the widest variety available anywhere.*

Give your next package the advantages of unlimited choice of materials, printing processes and experience which is uniquely Milprint. Use our nationwide network of research, design and production facilities and you'll agree...



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Cellophane is unmatched by any other packaging film for high speed machine performance. The twist wrapping of 500 candies a minute is just one example. What makes this possible? Cellophane is rigid and static-free. It feeds and forms perfectly. And, when a sealing operation is involved, it seals quickly and securely. What's more, cellophane's sparkling transparency creates greater sales appeal, and its freshness, flavor and aroma retention are superb.

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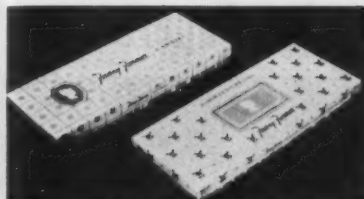
AVISCO

Result—total packaging economy. We offer a complete packaging service to assist you and demonstrate how Avisco cellophane, plain or printed, will answer your requirements better and more economically than any other packaging material. Contact us for an appointment with our representative or a selected cellophane converter specializing in your field. *P.S. Avisco cellophane is low in cost. It takes only 15c worth to wrap 500 of the candies shown above.*

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## New Packages



**Fanny Farmer Candy Shops** now offering its candy through outlets other than its retail shops and franchises has adopted a cellophane overwrap to facilitate self-service distribution in supermarkets and drug stores.



**Doumak, Inc.** is now manufacturing and marketing chocolate marshmallows under the name Pixie Chocolate Puffs. Packaged in printed polyethylene bags this completely new confectionery product was first introduced in the western states and is now being marketed in the mid-west.



**Broadway Confections, Inc.** is extending distribution of Trebor Sherbert Candies to include supermarkets. The three flavors chosen for supermarkets are orange, lemon and coffee crunch. This English line totals sixteen imported items which are now sold in bulk in department stores. The supermarket entries are individually wrapped in cellophane and packed in a lamination of cellophane to wax to cellophane.



**Imperial Candy Company** has switched from one-color polyethylene bags to six-color, flexographically printed backseam cello bags for the major portion of its Societe candy line. The brand name is styled to represent colorful pieces of candy and is the focal point of the package. The specific type of candy is identified in the lower front of the otherwise clear film bag.



**Spangler's** vanilla cream chocolate drops are now packaged in a molded plastic box which holds the candy in individual spaces. The container is similar to an egg carton as it holds each candy safely in place. The top is a sheet of clear plastic across which the description of the merchandise is printed.



**Necco** has re-designed the glassine wrapper of their Sky Bar. The product name printed in three colors on a white background presents a more dramatic aspect than the former two-color wrap.

## ARE YOU REALLY GETTING PACKAGING ECONOMY?

BY ROBERT H. GILJOHANN

Market Development Department,  
American Viscose Corporation  
Film Division



Most candy manufacturers realize their total packaging cost must be measured in terms of the sales appeal and protection a packaging film gives their product, plus the

amount of saleable candy wrapped per dollar spent for film.

But, they do *not* always realize how much money is lost when poor twist wraps, bar wraps, over-wraps or bags result from inferior film performance on packaging machines. Some films tug, jam and seal poorly. Waste takes a big slice out of profits —wasted candy, film, machine time and man hours.

It will pay you to carefully review *your own* packaging operation and also look into the *total* economy Avisco cellophane offers. Nothing matches cellophane for smooth, trouble-free performance at high speeds because it is rigid, static-free and seals quickly and securely.

Cellophane also has sparkling transparency that creates greater appetite appeal. What's more, there's a type of Avisco cellophane engineered to give any specific candy ideal protection.

For these reasons cellophane has long been the choice of most candy manufacturers.

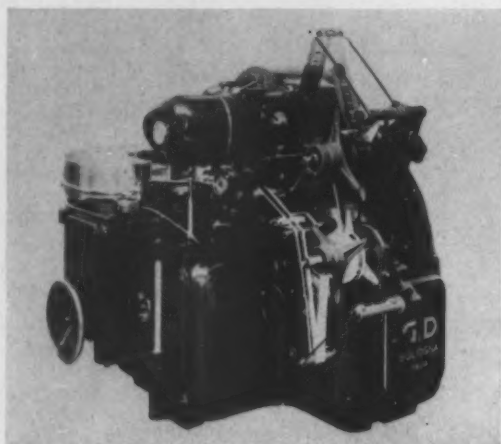
Call your Avisco cellophane representative or write to me. We'll be happy to send you a copy of the Avisco cellophane guide on candy packaging which specifies the types of cellophane best suited for various candy applications.

AMERICAN VISCOSE CORPORATION  
FILM DIVISION  
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**MODEL 2500**

**For high-speed twist wrapping  
of hard form square or  
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Double end twist wrap  
400-450 speed range  
per minute. From 320  
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bunch fold.

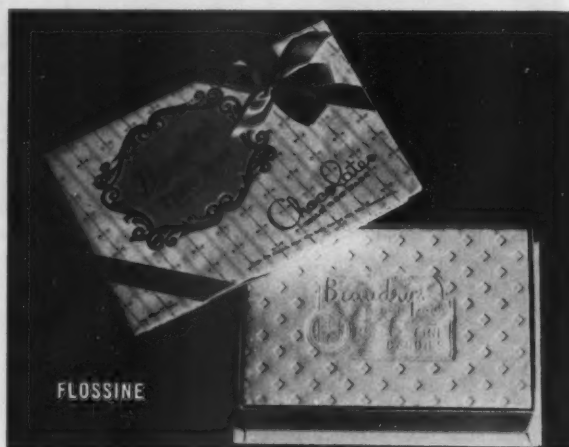


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BENEDICT R. MARFUGGI, Vice President - Sales Manager

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WRITE TODAY for a new folder  
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Los Angeles, California and Seattle, Washington

# New Broker Changes

The annual Directory of Candy Brokers lists several hundred candy brokers and the manufacturers they represent. Listed below are recent changes showing the manufacturers and the newly appointed broker.

- L. M. Becker, Brillion, Wisc.  
Roy Goodson, Jacksonville, Fla.  
Frank Z. Smith, Louisville, Ky.
- Bob's Candy, Albany, Ga.  
Hitz-Riley Co., Narberth (Phila.) Pa.
- Broadway Confections, Brooklyn, N. Y.  
Marvin N. Friedman, Reading, Pa.  
Benjamin N. Shapiro, Elkins Park, Pa.
- Cadbury-Fry Ltd., New York City, N. Y.  
Sandell-Forrest Co., Minneapolis, Minn.
- Candymasters, Minneapolis, Minn.  
R. B. Pruett, Greensboro, N. C.
- D. L. Clark, Pittsburgh, Pa.  
Ken Wise Co., Minneapolis, Minn.
- Falcon Nut & Candy, Philadelphia, Pa.  
C. G. Williams, Oswego, N. Y.
- Federal Sweets & Biscuit, Clifton, N. J.  
Hy Falkowitz, Syracuse, N. Y.
- Ferrara Confectionery, New York City  
Carl LaFleur Co., Hartford, Conn.
- Jacobson Candy, Des Moines, Iowa  
Fairley Brokerage, Hamilton, Ohio
- Walter H. Johnson, Chicago, Ill.  
Ken Wise Co., Minneapolis, Minn.  
Jarvis Sales Co., Denver, Colo.
- S. L. Kaye, Inc., New York City  
Tom Conrad, Port Washington, N. Y.
- King Candy, Fort Worth, Texas  
Hyde Brothers, Wichita, Kansas
- Lusk Candy, Davenport, Iowa  
C. G. Williams, Jr., Oswego, N. Y.
- McGarry Nut Prod., Chicago, Ill.  
Vranicar Brokerage Co., Denver, Colo.  
Lublin-Sugerman & Co., New York City
- Melster Candy, Cambridge, Wis.  
Frank Z. Smith Ltd., Louisville, Ky.  
The Johnston Co., Hudson, Iowa
- Milkmak Candy, Baltimore, Md.  
R. Henry Taylor, Lexington, Ky.
- Charles N. Miller, Boston, Mass.  
Shirley K. Smith Company, Charlotte, N. C.
- Pops Galore, Dallas, Texas  
Marvin N. Friedman, Reading, Pa.
- Pretzel Bitz Corp., Bluffton, Indiana  
Samuel Smith, Winston-Salem, N. C.
- The Harry P. Ritchie Co., Los Angeles, Calif.  
V. J. Drougard, Seattle, Wash.
- W. F. Schrafft & Sons, Boston, Mass.  
Charles Hansher, Los Angeles, Calif.
- Thill Candy, Philadelphia, Pa.  
Driscoll Bros. Co., Cincinnati, Ohio
- Veri-Fine Foods, Chicago, Ill.  
Carl LaFleur Co., Hartford, Conn.
- Voneiff-Drayer, Baltimore, Md.  
Wakin Brokerage, Monmouth Beach, N. J.
- Wallace & Co., Brooklyn, New York  
The Bratton-Rodems Co., Buffalo, N. Y.
- Stephen F. Whitman, Philadelphia, Pa.  
Carl LaFleur Co., Hartford, Conn.  
Hitz-Riley Co., Narberth (Phila.) Pa.
- Zion Industries, Zion, Illinois  
Hitz-Riley Co., Narberth (Phila.) Pa.

The 1960 Directory of Candy Brokers, classified by the territories covered by the brokers, is included in The Candy Buyers' Directory and is available at the publishing office for \$5 per copy.

for April 1960 — 39

The word for  
Candy Packaging is...

# Glassine

Rhineland Glassine paper keeps candy fresh . . . in appearance and taste. Provides versatile protection in candy packaging. Glassine is economical, prints well and performs smoothly on automatic packaging equipment.

Rhineland Glassine is available in a wide variety of glossy sales appealing colors . . . embossed, opaque and translucent grades. Write for samples.



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## CANDY PACKAGING AND MARKETING

Published bi-monthly by

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APRIL

Vol. 39, No. 2

1960





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# Invertase and cast cream centers

BY FRED JANSSEN  
The Nulomoline Division

**R**efined commercial invertase has been manufactured in the United States since it was discovered over 125 years ago, however, it was not until about 35 years ago that it was first introduced to the candy industry.

What is invertase? Invertase is one of the many enzymes found in yeast. Enzymes are organic substances widely found in nature. In extremely small proportions they are capable of causing a chemical change without undergoing any change themselves. They may be termed as nature's catalysts. Some of the other enzymes which are in general use are pepsin which is capable of digesting meat and egg albumen causing a breakdown of the protein and diastase which transforms starch into the sugar maltose.

The enzyme invertase is found in nature, for example, it is secreted by honey bees, thereby enabling the bees to transform the ordinary sugar in floral nectar into invert sugar, which is the characteristic sugar of honey.

The activity of an enzyme depends upon its environment and the presence of specific substances. The enzyme invertase acts upon sugar (sucrose) in the presence of water to produce invert sugar. When invertase is mixed in a sugar syrup it hydrolyzes or splits the sucrose into levulose and dextrose producing the combination known as invert sugar.

The invertase used by the candy industry, al-

though prepared from yeast, imparts absolutely no flavor, odor or color to any product into which it is incorporated. It has been known, if properly prepared, to keep its activity for many years in an unopened container.

The degree of inversion accomplished at ordinary temperatures by acid substances in fondant confections is considerably less than frequently assumed. The amount of acid used would also have an effect upon flavor. Therefore, the ideal inverting agent for fondant cream would be a substance, bland in flavor, yet capable of causing a sufficient degree of inversion at ordinary temperatures. These conditions are satisfied by the enzyme invertase.

Invertase is used principally in cast cream centers, rolled cream centers, cordial fruit cream centers and fondant coconut kisses. It makes the candy softer, retards drying, and checks fermentation.

Fermentation can develop in the syrup portion of a cream center. Suppose we took sugar and water and made it into a cream center. It will, as in all cream centers, have a solid phase (the crystalline portion) which is surrounded by the liquid phase (the syrup portion). In the solid portion other than the size of the crystals there will be very little to examine. However, the syrup portion would contain all of the water plus all of the sugar it can dissolve or twice its weight when sucrose alone is used in the batch. Therefore, this cream would have a syrup concentration of approximate-

# Sucrest

## LIQUID SUGARS

**FAST, DIRECT DELIVERIES**

From our modern ion exchange refineries at New York and Chicago roll the industry's needs for Liquid Sugars — sugars that stay uniform in quality day after day. There's no need for process and formula changes... and you benefit from big savings in time, space and production. We supply a complete line of top-quality Liquid Sugars to meet any need. Our Technical Staff is always available... services range from designing installations to the development of new formulas to your specifications.



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ly 67% assuming that very little inversion has taken place during the cooking operation. We all know that a syrup of such a low density will easily ferment because the wild yeast from the air, our hands, equipment or the starch will infect the cream and will grow in a syrup of this concentration. These yeasts will multiply to form colonies and produce gas until the pressure is built up enough to split the walls of the chocolate coating and permit the syrup to leak out. If the cream does not ferment it will rapidly dry out because it does not have moisture retaining properties.

In most candy plants it is customary to add a so-called "doctoring" material to the sugar and the water in order to control the crystal growth and the texture of the fondant. These could be cream of tartar, corn syrup and/or invert sugar but when the fondant is made the syrup density may then be 72 to 75%. This density is not enough to prevent gas forming organisms from propagating and causing fermentation.

The addition of invert sugar or other materials tends to create an immediate increase in syrup density which is insufficient to prevent fermentation. With the addition of invertase there will be a continuing increase in syrup density until the saturation point has been reached and at this point fermentation cannot take place.

A cream center of a less tough type can be made by using this method. The tenderness and softness of the center are controlled and assurance against fermentation will be maintained.

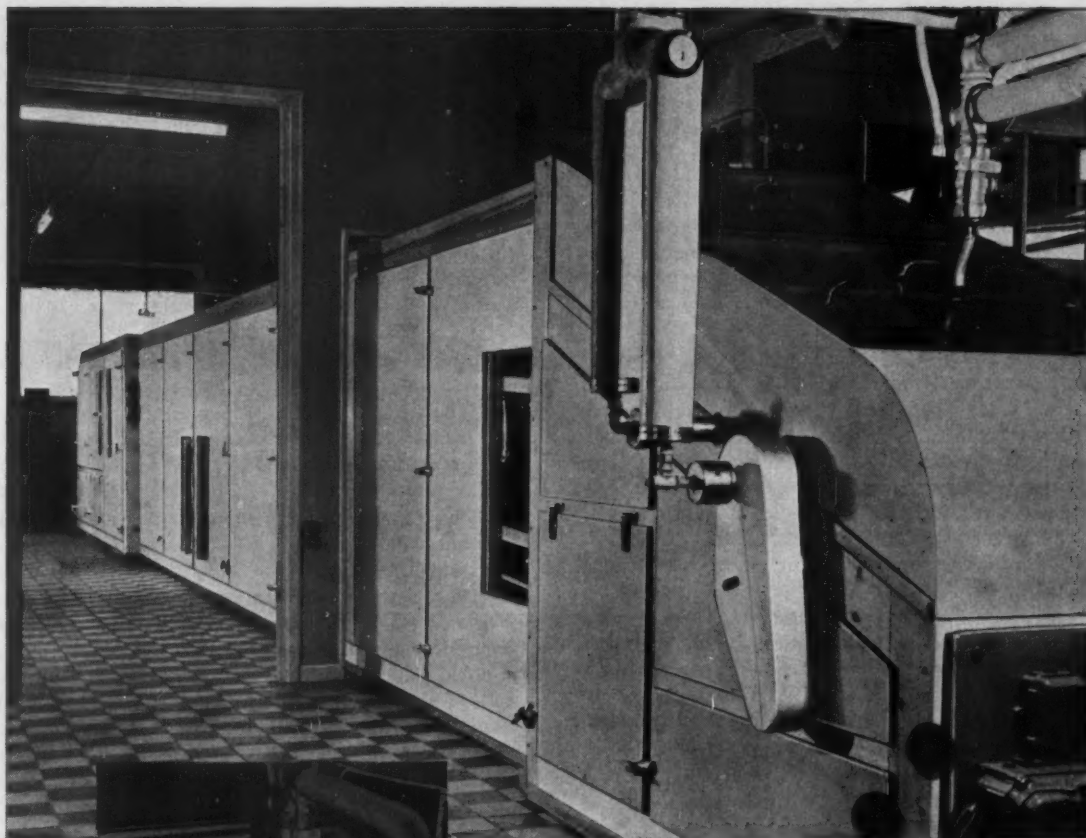
How does invertase act inside a cream center? The moisture in the syrup portion of the fondant cream has taken up all the sugar that it can hold in solution. The invertase attacks the sugar in the syrup and converts it into invert sugar. We now have sugar syrup plus invert sugar which makes a larger amount of syrup and a smaller percentage of sugar crystals in the center. As the invertase continues to work, more invert sugar is developed and still more sugar crystals can go into solution due to increased solubility. Gradually the action of the invertase will diminish due to the density of the syrup. When all of the available moisture in the syrup or the fondant is utilized, the invertase will become dormant and cease to function. In other words, when a syrup density of a cream center has reached a density of 82-83% it has reached its end point depending upon the type of center being made.

By varying the degree of cook in the fondant or bob syrup and thereby controlling the amount of moisture in the fondant center, the degree of softness, plasticity, and shortness can be controlled.

Fermentation rarely if ever occurs in cream centers when the syrup density is 79 or more.

When making cast cream centers it is recommended that at least 1 oz. of invertase be added to each 100 lbs. of the cast cream batch. This as a rule will soften the centers within 8 to 15 days. If a more rapid softening and again greater protection against possible fermentation is desired then additional invertase may be used. As much as





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for high speed production  
of small chocolate goods  
such as  
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mocca beans,  
small eggs etc.



### 100% automatic operation

Automatic feeding of chocolate, electronically controlled.

Capacity depends on the size of the pieces. As an example, lentils sized 800 per pound, made on a unit with two sets of rolls, will produce from 500 to 600 pounds per hour.

Items made on this machine are usually finished by panning, polishing or wrapping.



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2 to 3 ozs. per 100 lbs. may be incorporated in a batch of cast creams. To get the full effect of the invertase it is recommended that the invertase be added to a batch at a temperature no higher than 165°F. Though this is a general rule to follow, we have known candy plants to make cast creams for special purposes putting the invertase into batches at 200°F. or even higher but in those cases it was for a short period of time and the batches were deposited very quickly. In special instances as this, additional invertase is usually added to the batch to compensate for any possible loss of activity due to the effect of this high heat.

An important factor in the rate of inversion is the control of the pH, for it has been found that invertase has its greatest activity in creams having a pH of 4.2 to 5.5 pH values below or above these would greatly diminish the rate of inversion. Therefore, it is often necessary especially when hard water is used, to add citric acid to neutralize the alkalinity of the water. The amount of acid to add would vary with the degree of hardness of the water.

The amount of invertase used in cream work is only a very small part of the total batch, therefore, it should be thoroughly mixed to assure even distribution throughout the batch. If a batch is not properly mixed, the part containing invertase may soften properly and the remainder, without the invertase may dry out or ferment.

While it is a common practice to add the invertase at the time rolled cream centers are being creamed, it is just the opposite with cast cream centers. The invertase is held back and added after the batch has been completely assembled and almost ready for casting. This is done to assure full effectiveness from the invertase.

When making cherry cordial creams or other fruit cream centers it is recommended that 3 to 4 ozs. of invertase be added to each 100 lbs. of the assembled fondant cream. This is done to insure quick inverting action which is needed to check the activity of the wild yeast which might cause fermentation. This will also insure attaining a more complete inversion.

An additional advantage is attained by using invertase. A center containing a larger percentage of sucrose will set more quickly and retain its shape better than when large percentages of corn syrup and invert sugar have been used.

We can start with a relatively short type of center containing a little invert sugar, and added frappe to lighten it. Then sufficient invertase is incorporated to convert the maximum amount of sucrose to invert sugar within a period of approximately one week. This will prevent troubles from spoilage.

A center of this kind is of a rugged type which is easily handled under average factory conditions. After coating, the invertase will begin its work and soon the centers will break back into a semi-liquid consistency.

This makes possible the production and coating of a rugged type of center without the usual draw-

backs attendant upon coating a softer center.

Cast cream centers are usually made with a basic fondant to which is added a cooked (bob syrup) which then melts or reduces the fondant to a semi-fluid condition, after which frappe, invertase, flavoring materials, and color are added. It is a question of adding enough heat units to melt the fondant thus making it possible to easily cast it into starch impressions.

Let us consider the following formula for basic fondant:

100 lbs.	Granulated Sugar
25 lbs.	Corn Syrup
10 lbs.	Standardized Invert Sugar
25 lbs.	Water

The temperature to which this batch can be cooked may vary between 238°-244°F., depending upon the type of cast cream centers being made.

When making basic fondant for cast creams, it is common to include a desirable amount of crystal-controlling ingredients, such as invert sugar and corn syrup as it is necessary to balance the fondant syrup so that premature crystallization will not occur during the period in which the cooked syrup is cooled and later beaten into fondant. This formula will produce a quality basic fondant, regardless of how it is cooked,—in an open kettle, under vacuum, or when operating any other types of cooling and beating equipment generally used in the production of fondant.

The size of the batch would depend upon the capacity of the equipment being used. This formula can be used on any type of equipment and it may be made in 100 lb. batches or 1,000 lb. batches.

Having made the basic fondant, we will also need three other stock materials; namely, frappe No. 1, frappe No. 2, and frappe No. 3, in order to make cast cream centers. The frappe No. 1 is made by cooking 50 lbs. of corn syrup to 245°F. and then adding 50 lbs. of standardized invert sugar and stirring until it is melted. Then the batch is placed promptly into a beater, the beater started, and 1 lb. of egg albumen, which has been dissolved in 2 lbs. of water, is gradually added and the batch beaten until light.

The formula for frappe No. 2 is exactly the same as frappe No. 1, with the exception that twice as much egg albumen (2 lbs.) and double the amount of water (4 lbs.) is used to dissolve the albumen. This will, of course, make a lighter frappe. To make a still lighter frappe, a No. 3 frappe is made by cooking 50 lbs. of corn syrup to 245°, then adding 50 lbs. of standardized invert sugar, mixing until it is melted, and placing this into a marshmallow beater, the beater started and then add 3 lbs. of egg albumen which has been dissolved in 6 lbs. of water. The batch is then permitted to beat until it is quite light.

It is good practice to make the frappe in advance so that it is practically cold by the time it is used. The purpose of the frappe is to lighten and whiten the cream centers, and it has a very

*Continued on page 56*

# Candy Clinic

The Candy Clinic is conducted by one of the most experienced superintendents in the candy industry. Some samples represent a bona-fide purchase in the retail market. Other samples have been submitted by manufacturers desiring this impartial criticism of their candies, thus availing themselves of this valuable service to our subscribers. Any one of these samples may be yours. This series of frank criticisms on well-known branded candies, together with the practical "prescriptions" of our clinical expert, are exclusive features of The MANUFACTURING CONFECTIONER.

## \$1.20 and up Chocolates; Chocolate Bars

### Code 4A60 Assorted Chocolates 1 lb.—\$1.65

(Purchased in a retail candy shop,  
New York City.)

#### Appearance of Package: Good

Container: Long, oblong box, one layer type. White paper top printed in blue and brown. Imprint of maid in blue and white. White paper wrapper printed in blue and brown, tied with brown twine.

#### Appearance of Box on Opening: Fair. See remarks.

#### Number of Pieces:

Dark Coated: 18  
Lighted Coated: 12

#### Chocolate Coatings:

Colors: Good  
Gloss: Fair  
Strings: Fair  
Taste: Fair

#### Dark Coated Centers:

Orange Creams: Good  
Caramallow: Good  
Vanilla Cream: Good  
Coconut Cream: Dry  
Marshmallow: Very tough and dry  
Cream: Could not identify flavor  
Buttercream: Fair  
Ice Cream Drop: Good  
Chocolate Buttercream: Good

Maple Nut Cream: Good  
Vanilla Caramel: Fair  
Brazil Nut Cream: Good  
Light Coated Centers:  
Chocolate Nut Caramel: Good  
Nut Crunch: Good  
Vanilla Caramel: Good  
Nut Cream: Hard and Dry  
Vanilla Cream: Good  
Pecan Cream: Good  
Peanut Cluster: Good  
Nut Caramel: Good  
Ice Cream Drop: Good  
Nut Taffy: Good  
Chocolate Nut Buttercream: Good  
Assortment: Small

Remarks: Chocolates are not up to the standard of other boxes we have examined in this price field. Eight pieces were broken. Some of the creams were dry and lacking in flavor. The dipping was careless and the strings were poor.

### Code 4B60 Assorted Chocolates 1 lb.—\$1.79

(Purchased in a retail candy shop,  
New York City.)

#### Appearance of Package: Good

Container: Long oblong box, one layer type. Top printed in orange, dark brown, blue and white. White paper

wrapper, overall print in blue of famous building in N. Y.

Appearance of Box on Opening: Good. Attractive printed gold paper backed foil, name printed in blue.

#### Number of Pieces:

Dark Coated: 21  
Light Coated: 13  
Foiled Piece: 1  
Crunch, Cello Packed: 1  
Unwrapped Chocolate Nut Caramel: 1

#### Coatings:

Colors: Good  
Gloss: Good  
Strings: Good  
Taste: Good

#### Dark Coated Centers:

Honeycomb Chips: Good  
Chew: Good  
Nut Nougat & Chocolate Caramel: Good

#### Orange Jelly: Good

Coconut Paste: Good  
Fruit Nougat: Good  
Almond Top Marshmallow: Good  
Cashew Cluster: Good  
Strawberry Cream: Good  
Dark Cream: Could not identify flavor  
Pink Marshmallow: Could not identify flavor

#### Vanilla Cream: Good

Cordial Cherry: Good  
Molasses Coconut Paste: Good  
Mint Jelly: Good  
Vanilla Nut Caramel: Good  
Vanilla Caramel Finger: Good  
Raisin & Caramel Cluster: Good  
Chocolate Paste: Good

#### Light Coated Centers:

Nut Crunch: Good  
Vanilla Fudge: Good  
Coconut Ting Ling: Good  
Filbert & Caramel Cluster: Good  
Pecan Top Nut Caramel Paste: Good  
Nut Nougat: Good  
Peanut Cluster: Good  
Dark Marshmallow Square: Could not identify flavor  
Chocolate Paste: Good  
Glacé Pineapple: Good  
Vanilla Caramel Finger Shaped: Good  
Cellulose Wrapped Nut Crunch: Good  
Chocolate Pecan Caramel: Good

## Candy Clinic Schedule For the Year

JANUARY—Holiday Packages; Hard Candies

FEBRUARY—Chewy Candies; Caramels; Brittles

MARCH—Assorted Chocolates up to \$1.15

APRIL—\$1.20 and up Chocolates; Chocolate Bars

MAY—Easter Candies; Cordial Cherries

JUNE—Marshmallows; Fudge

AUGUST—Summer Candies

SEPTEMBER—Uncoated & Summer Coated Bars

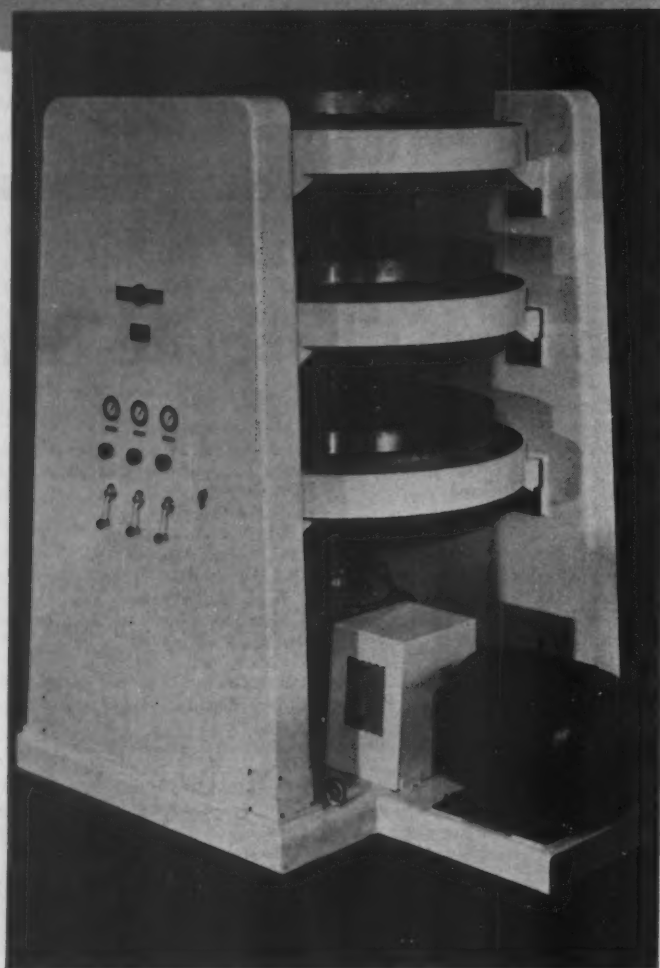
OCTOBER—Salted Nuts; Gums & Jellies

NOVEMBER—Panned Goods; 1¢ Pieces

DECEMBER—Best Packages and Items of Each Type Considered  
During the Year.



## The LEHMANN TRIPLE COCOA LIQUOR MILL sets *new* performance standards



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Send for further information.



### J. M. LEHMANN COMPANY, Inc.

550 NEW YORK AVENUE, LYNDHURST, N. J.

**Gold Foil Praline: Good**

**Assortment: Very good**

**Remarks:** The best assorted chocolates we have examined in some time. Very good quality. Suggest some of the flavors be checked as they were very mild; we could not identify these flavors. Very good quality of chocolate coatings and good workmanship of dipping and centers.

**Code 4D60**

**Assorted Chocolates**

**1 lb.—\$1.40**

(Purchased in a retail candy shop, New York City.)

**Appearance of Package: Good**

**Container:** Long oblong box, one layer type. Paper wrapper, overall printed in gold. Cellulose wrapper over box.

**Appearance of Box on Opening: Very good**

**Number of Pieces:**

**Dark Coated: 12**

**Light Coated: 19**

**Chocolate Coatings:**

**Colors: Good**

**Gloss: Good**

**Strings: Good**

**Taste: Good**

**Dark Coated Centers:**

**Molasses Chew: Good**

**Fruit Nougat: Good**

**Chocolate Buttercream: Good**

**Coconut Paste: Good**

**Vanilla Caramel: Good**

**Chocolate Caramel: Good**

**Nut Buttercream: Good**

**Orange Cream: Lacked enough flavor**

**Cream: Could not taste any flavor**

**Vanilla Cream: Good**

**Light Coated Centers:**

**Coconut & Chocolate: Good**

**Vanilla Cream: Good**

**Almond Cluster: Good**

**Fruit Nougat: Good**

**Nut Buttercream: Good**

**Chocolate Cream: Good**

**Coconut Paste: Good**

**Peanut Butter Chip: Good**

**Vanilla Caramel: Good**

**Cashew Cluster: Good**

**Molasses Coconut: Good**

**Chocolate Buttercream: Good**

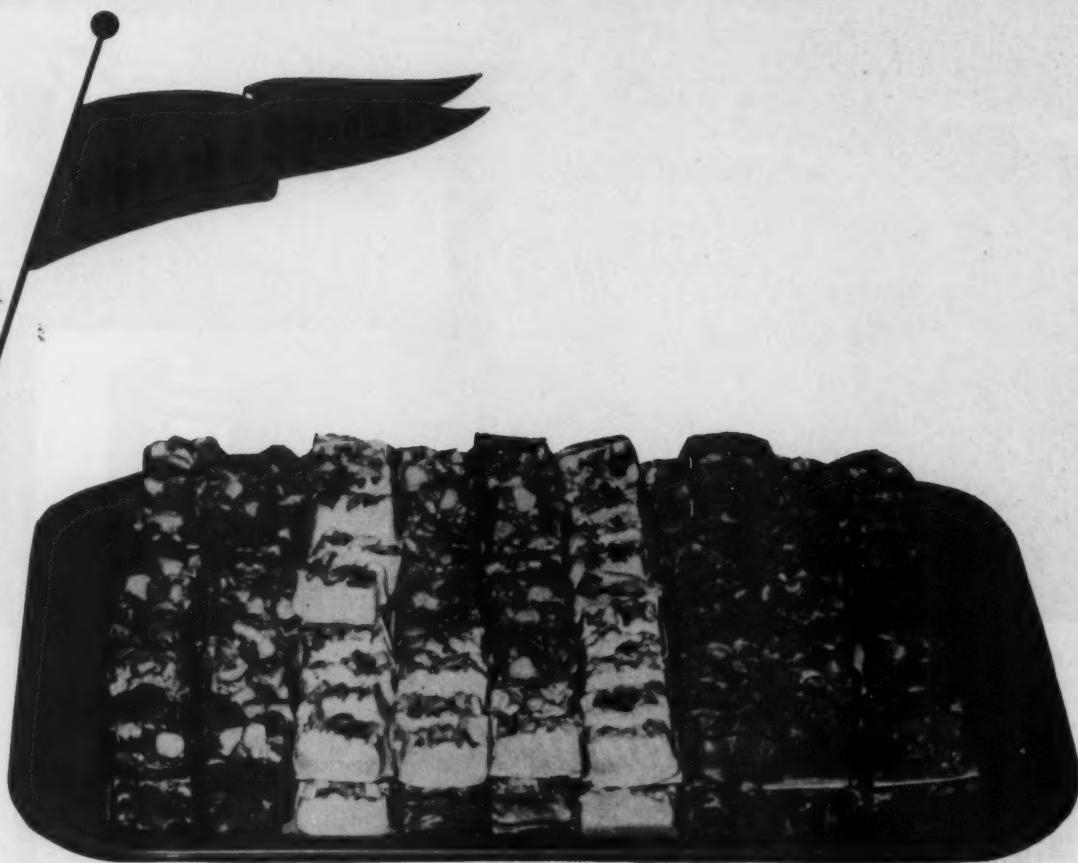
**Pecan Cluster: Good**

**Assortments: See remarks**

**Remarks:** Suggest a few more hard and chewy pieces be added to improve the assortment. One of the best assorted chocolates we have examined in this price field. Very good workmanship. Suggest some of the flavors be checked, some pieces also lacked enough flavor.

All subscribers are entitled to send samples of their candy to the Candy Clinic for analysis and report. Address duplicate samples, with approximate retail price, to The Candy Clinic, c/o The Manufacturing Confectioner, 418 N. Austin Blvd., Oak Park, Illinois.





## Maple nut tops

BY JOHN LEWIS, Head Candymaker  
Putnam Pantry

### Formula:

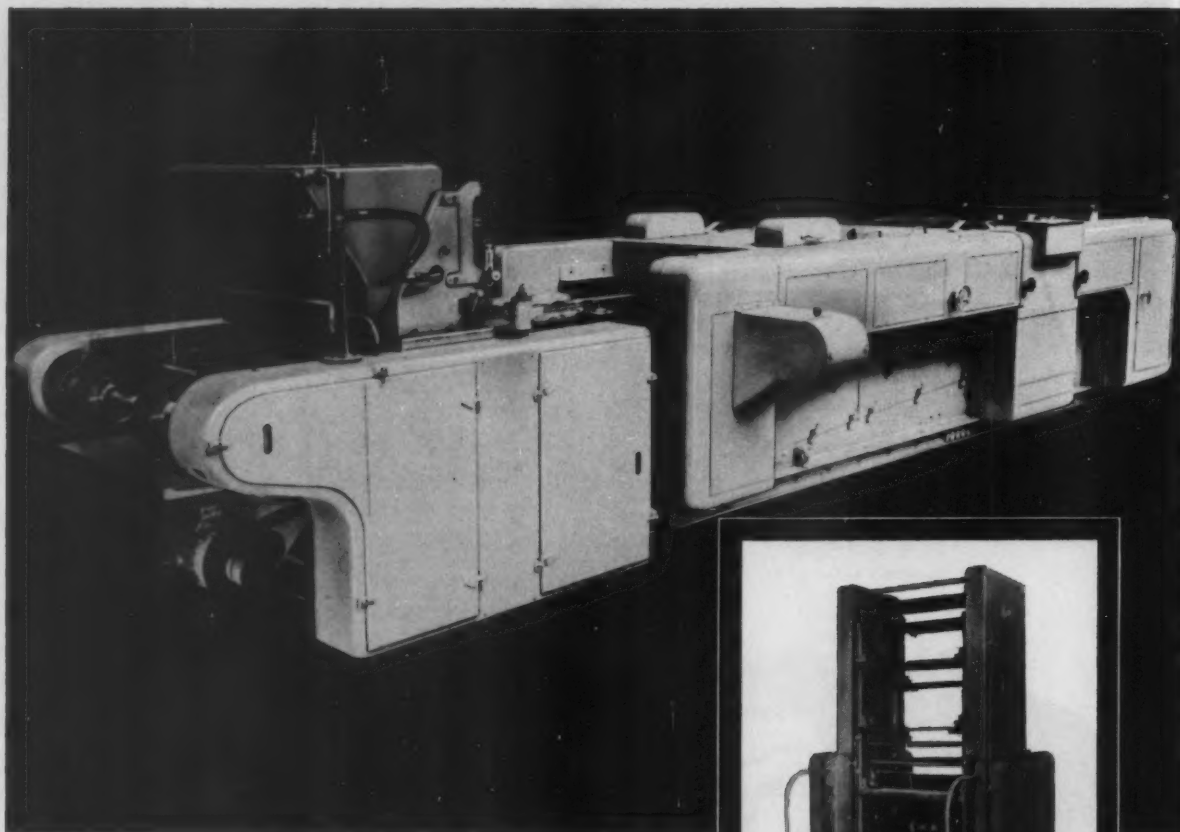
6 lb. corn syrup  
6 lb. Nulomoline  
3 lb. sugar  
1 qt. dark, strong flavored pure maple syrup  
("512")  
1 gal. heavy cream  
4 tbsp. salt

### Procedure:

Combine all ingredients and cook up to a soft ball stage. Pour onto water-cooled table. Pour about three-eighths inch high and load the top of

the caramel with nuts. Cut in oblong pieces 1" x 1-1/2". Dip sides and bottoms in chocolate, milk and dark for variety.

I use green and white nuts for this piece. During the war when pistachio nuts weren't available I started to make my own green nuts from fancy cashew pieces. I soak the nuts ten minutes in a very strong solution of coloring and water brought to a boil. After straining off the liquid I put the nuts near heat to dry them quickly. A mixture of these green nuts and chopped Brazil nuts (half and half) makes an effective topping for this piece.



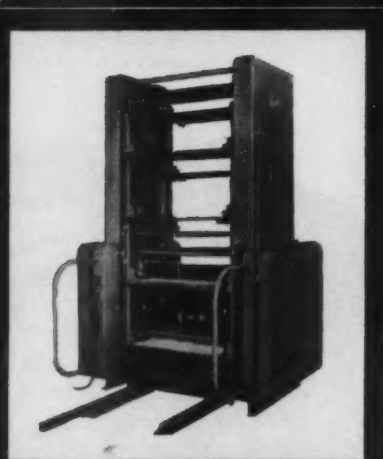
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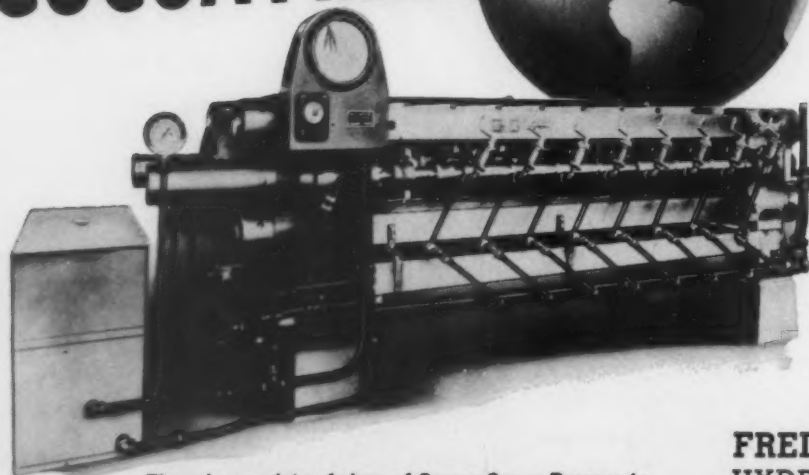
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## CALENDAR

April 27-29; PMCA, 14th annual production conference Franklin & Marshall College, Lancaster, Pa.  
 April 30; Southwestern Candy Salesmen's Club, luncheon meeting, Sammy's Oak Lawn Restaurant, Dallas, Texas.  
 April 30; Gopher Candy Club, luncheon meeting 12:30 P.M., Normandy Hotel, Minneapolis, Minn.  
 May 1-4; Flavoring Extract Manufacturers' Association, 51st annual convention, Hershey Hotel, Hershey, Pennsylvania.  
 May 2; Denver Mile Hi Candy Club, breakfast meeting, 7:30 A.M., Denver Athletic Club, Denver, Colo.  
 May 6; St. Louis Candy Sales Association, 7:30 P.M. Meeting, Congress Hotel, St. Louis, Mo.  
 May 10; AMCC, testimonial dinner for Andrew Heide, Grand Ballroom Biltmore Hotel, New York City.  
 May 13; Los Angeles Confectionery Sales Club, 12:00 noon meeting, Roger Young Auditorium, L. A.  
 May 14; Carolina Confectionery Salesmen's Club, luncheon meeting, S&W Cafeteria, Charlotte, N. C.  
 May 14; Kansas City Candy Club, luncheon meeting, Town House Hotel, Kansas City, Kansas.  
 June 5-9; Associated Retail Confectioners, convention, Philadelphia, Pennsylvania.  
 June 5-9; National Confectioners Association, 77th annual convention, Philadelphia, Pennsylvania.  
 June 9-12; New York Candy Club & Metropolitan Candy Brokers Assn., 5th annual candy show, Trade Show Building, New York City.  
 July 10-13; SWTCA, convention, Dinkler Plaza Hotel, Atlanta, Ga.  
 June 23; Confectionery Salesmen's Club of Baltimore, stag outing, Turf Valley Club, Ellicott City, Md.  
 July 30-August 4, NCWA, 1960 convention, Sheraton-Park Hotel, Washington, D.C.

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# the manufacturing retailer

## Two successful California retailers

**H**er eyes were good, they looked straight at you and her smile sparkled as she said, "I think the chocolate life is wonderful." Her name is Jean Wertz McClure. Mrs. McClure and her brothers, Karl A., and Allen Wertz, Jr., operate the family business, Allen Wertz, Inc., 3070 Los Feliz Boulevard, Los Angeles 39, California. They have four retail outlets under the Allen Wertz name and in the neighborhood of fifteen semi-franchise outlets to keep their factory humming.

Now you go over to meet Mr. Foss, a trim, wholesome man with two candy kitchens which are glass enclosed and connected to two retail outlets in the Farmers' Market at 3rd Street and Fairfax Avenue in Los Angeles. He is a fine, friendly man with a great warmth, and a feeling of pride was visible in his face and gesture and words as he said, "I'm a small manufacturer and retailer. I know it's all worthwhile when things happen to me like this: customers mail me signed checks with the amount left open and tell me to fill it in for the price of twenty or thirty pounds of my fudge, plus shipping charges. It's a real good feeling when people like what you're doing."

Two business people, two entirely separate organizations which merit and have financial success for the simple reason they like what they do and some of the joy rubs off, and because what they produce is always top quality.



The Allen Wertz retail store exterior in front of their factory kitchen is modern and chic in keeping with their plush decor inside.

Mr. Foss in the Farmers' Market has a huge volume of people from all over the world who see his candy being made, purchase some, and either come back for more or write him and order it sent to them or their friends. He has outside kitchens nearby and he stocks candy which he buys wholesale to keep his eight clerks moving when the crowd stacks up in front of his displays. His specialty is fudge, and the demand for it keeps him hopping, sometimes selling it the day it was made, though he feels it is better the second day and that is the way he plans his manufacturing, make one day and sell the next, if he can keep it around that long.

Going back to the Allen Wertz operation, it is much larger and the retail shops they operate under their name are plush in decor and located in spots which cater to the most successful people of the southland. In Beverly Hills, there is an Allen Wertz shop at 193 South Beverly Drive; in Los Angeles, 6311 Wilshire Boulevard in an area of tall, new professional buildings, and there is a beautiful shop in the world famous Ambassador Hotel at 3400 Wilshire Boulevard, and the retail shop in front of the factory at 3070 Los Feliz Boulevard.

In the factory showroom and display shop, piped music and the fragrance of candy are backed up with lavish displays. A variety of humorous greeting cards are in a wall rack against soft blue-grey and dusty-rose walls. The girls behind the counter are sprightly and pretty.

In Las Vegas, Nevada, the Tropicana and the Riviera Hotels are the places to buy the delicious Allen Wertz candies; in Toluca Lake, a posh suburb of L.A., the Lakeside Pharmacy is the place; in Brentwood, an area of elegant homes, The Parasol stocks the line. Over in San Marino, the Colonial Room carries the candies. Then there are numerous hospitals in Southern California which display Allen Wertz candy in the famous Gold Box at their gift counters.

Mrs. McClure said that Allen Wertz, Inc., does no advertising. They depend upon displays in the "right" location and the appreciation of their customers who spread the Wertz fame by word of mouth and also by giving it or sending it to friends and family.

The Wertz family has been making candy in the United States for seventy-five years, starting in Reading, Pennsylvania, where they created a successful business which flourished for fifty years, and for the past twenty-five years, Allen Wertz candies have been manufactured and retailed on the Coast, in L.A.

"We consider our prices average and our quality tops," said Jean Wertz McClure. "We'll be in business for a long, long time." Relaxing in her



The Farmers' Market Candy Kitchen, one of Mr. Foss's two exposed kitchens and retail outlets in Farmers' Market 3rd Street and Fairfax Avenue, Los Angeles, California.

office chair, she said, "Making the best product you can, making a product people want, that contributes so much joy . . . a real hike in morale is a 'happy business'. I like it."

Quality . . . not a word, a fact.

The smaller manufacturer, Mr. Foss, with two retail stalls in the Farmers' Market says practically the same thing: "I feature *super* quality, and the exposed kitchens at the stalls show the cleanliness I maintain as my operating standard. Quality and cleanliness stimulate my trade. I stabilize my operation by maintaining a fair price I consider *low*; I make an effort to keep my help interested and eager to please my customers, and hope they like me. Most of my clerks have been with me a long time, and I respect them and want them to stay with me."

Mr. Foss pointed this out: "People from all over the United States visit this Market, and some come from other countries of the world. Its not only good for my business that they send for my candy, its a matter in which I have great pride. People who vacationed out here on the Coast, two, three years ago, come back and tell me how much they liked my product, and the men, while their wives are shopping, sometimes discuss business and how they're doing in the Mid-West or in the East. I like people and I like candy."

Both of these retail manufacturing operations are thought of as personal achievements by the owners. Pride in their work and a real joy in doing what they like and want to do has added up to success for both of these manufacturing retailers.



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# Technical Literature

## High-Amylose Corn—Properties and Prospects

F. R. Senti and R. J. Dimler, *Food Tech.*, Vol. 13, No. 11, (1959)

A four-page discussion of subject. Applications such as packaging films and coatings for paper to increase grease resistance may be of value in future to candy industry.

## Effects of Curing Temperature on Gas Permeability and Moisture Equilibration of Stored Peanuts

Roy U. Schenk, *Food Tech.*, Vol. 13, No. 11 (1959)

Curing methods influence peanut quality. One variable, the occurrence of differences in gas-permeability of the outer layers of peanuts resulting from variations in curing methods, has been investigated. The nuts were shown to exchange gases at rates inversely related to their curing temperatures. The presence of a semi-permeable layer at or near the surface of the cotyledons was shown. This layer did not affect the moisture equilibration appreciably but nuts cured at high temperatures had lower equilibrium moisture contents than those cured at room temperature. Roasting appeared to have little effect on the gas permeability of this layer.

## Vanilla Extract: An Improved Lead Number Determination

William J. Considine, *Food Tech.*, Vol. 13, No. 12 (1959)

The usual Wichmann method involves the determination of lead as the sulfate or chromate by gravimetric methods. A method of titration of the lead by ethylenediaminetetraacetic acid is detailed and shown to be rapid, accurate and convenient.

## Transistorized Bloom Gelometer

Ralph E. Schachat and Anthony Nacci, *Food Tech.*, Vol. 14, No. 2 (1960)

A modification of the B. G., reduction of current passing through the silver plated contacts through the use of a transistor amplifier circuit, is reported. The subsequent elimination of pitting and avoidance of frequent adjustments of contacts are advantageous. Conversion directions are given.

## Determination of Citral in Lemon

## Grass and Citrus Oils by Condensation with Barbituric Acid

Leo Levi and Paul M. Laughton, *Jour. Agric. & Food Chem.*, Vol. 7, No. 12 (1959)

The quantitative determination of citral, a basic raw material used by essential oil, flavor and cosmetic firms, is of importance to both producers and processors of aromatic chemicals. Treatment of the  $\alpha,\beta$ -unsaturated aldehyde with B. acid in aqueous ethyl alcohol causes a condensate, citrylidene barbituric acid which shows ultra violet absorption at 336 Mm. The intensity of the band observed at that wave length under con-

trolled conditions is the basis for the quantitative measurements. This spectrophotometric examination of the reaction product is highly specific, rapid, easy to execute and reproducible. A 10-page article.

## The Dextrose and Maltose Contents of Commercial Liquid Glucose

S. J. Patterson and J. L. Buchan, *Analyst*, Vol. 85, No. 1006 (1960)

A note on the sugar contents of samples of typical liquid glucose produced by three British firms. Determinations were made by the Patterson & Savage carbon-column method (see *Analyst*, 1957, 82, 812).

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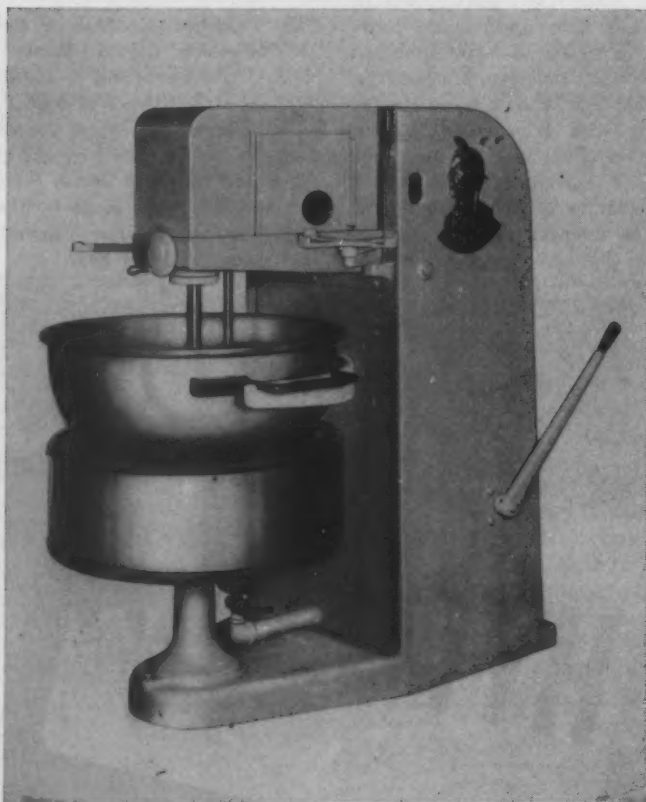
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Confectionery Broker Representing  
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Since 1925  
Territory: Pennsylvania excluding  
Philadelphia.



Continued from page 30

cosity and solids content of high-conversion syrup are optimum for good whipping properties without the necessity of boiling off water, and the sweetness is ideal for good flavor. Replacement of regular syrup with high-conversion syrup in a standard frappe formula will result in a superior product with greater volume-producing properties than ordinarily are obtained.

7. **Fondant and Creams**—High-conversion corn syrup is recommended in the fondant, frappe, and bob portions of candy creams to produce lighter, shorter, more tender textures and better eating qualities than ordinarily are obtained by use of the same proportion of a lower D.E. syrup. As in other grained candies, if high-conversion syrup is used on a solids basis to replace regular syrup or regular syrup and other noncrystallizing sweeteners, the extent of sugar graining will not be affected.

8. **Coconut Candies**—High-conversion corn syrup can be used to impart a more tender texture, improved moisture retention, added sweetness, and a better flavor to coconut candies. However, coconut candies are of many types, some of which require considerable body or chewiness of texture. For such types regular rather than high-conversion syrup is indicated.

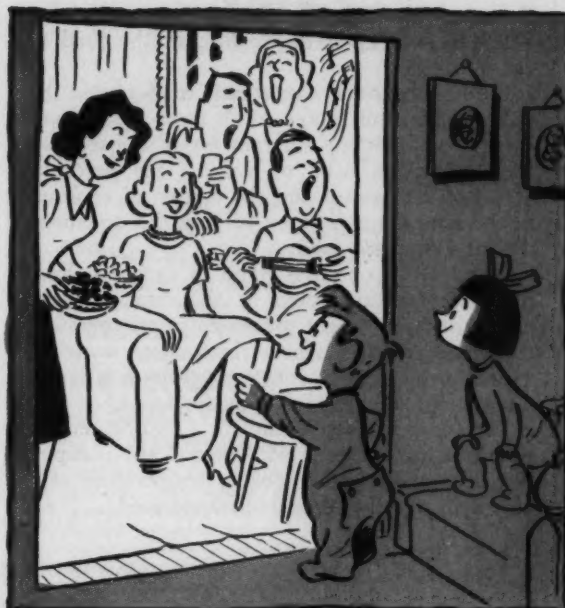
High-conversion corn syrup, thus, is most applicable to use in all soft candies in which prevention of moisture loss and the keeping of a soft, tender texture are desired and a long shelf life is important. Soft candies produced with high-conversion syrup differ from those made with other syrups primarily because of differences in the sweetness, viscosity, solids concentration, hygroscopicity, and boiling points of these syrups. These differences make it necessary to adjust formulas and cooking temperatures when changing to high-conversion corn syrup, but such adjustments are more than justified by the benefits to be gained.

The enzyme-conversion process for making high-conversion corn syrup was developed just over 20 years ago. Since that time, the use of this syrup in candies has steadily expanded. In the various types of candies discussed previously, the functions of this unique type of corn syrup provide greater ease of handling, improved body and texture, better flavor, longer shelf life, and lower costs.

#### References:

1. Technical Bulletin #258, N. Y. State Agr. Expt. Sta., *The Relative Sweetness of Sugars as Affected by Concentration*, Dahlberg and Penczek, page 10.
2. *Corn Syrups and Sugars*, Second Ed., 1958. Corn Industries Research Foundation, Inc., page 38.
3. Bulletin #696, N. Y. State Agr. Expt. Sta., *Dextrose and Corn Syrup for Frozen Desserts*, Dahlberg and Penczek, page 10.

*This paper was read before the New York Section of the American Association of Candy Technologists on February 11, 1960.*



**Gee, Mom! Don't forget to save us some of those Brazil Nut Candies.**

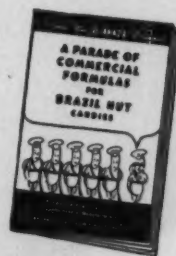


#### Kernel Nut of Brazil Says:

When children see grownups enjoying fresh, crunchy Brazil Nut Candy they naturally want some, too. For it's true that most everyone, regardless of age, is particularly fond of candy given the extra goodness of Brazils. Why not use tempting Brazils in more of your candy formulas? They can add new deliciousness to many of your finest candies. You'll find that all through the year, especially around holidays, it pays in more sales and

more profits to keep candies with the "eye-and-buy" appeal of Brazils always on prominent display. And here's a timely suggestion: Try giving your sales a lift by bringing out a Brazil Nut Candy Bar of your own. We think the result will more than please you.

**FREE: . . . FOR YOU.** Just fill out the coupon in this advertisement and send it to us. We'll immediately mail you a complimentary copy of our valuable Candy Formula Book. This handsomely illustrated, 72-page guidebook to more profits gives you 81 practical ways to use Brazil Nuts to increase sales. Mr. Jas. A. King wrote this money manual for the candy maker expressly to help you attract more sales.



#### CLIP AND MAIL THIS COUPON NOW

Brazil Nut Association, Dept. MA-9,  
100 Hudson Street, New York 13, N. Y.

Please send me FREE your Brazil Nut Candy Formula Book with its many tested ways to help me make money.

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STREET .....  
CITY ..... ZONE ..... STATE .....  
BY .....

Continued from page 44

definite effect upon the texture of the final cast cream centers.

We now have the single basic fondant and three different kinds of frappe. With these we can make at least 10 or more different types of cast cream centers. This is done by varying the percentage of sugar, corn syrup and the degree of cook used in the bob syrup, and by varying the amounts of any kind of frappe used.

About 50 lbs. of bob syrup to each 100 lbs. of the basic fondant would be the right proportion to use in order to get proper casting temperature. It is good practice to have the fondant warmed to approximately 120°F. (at the time the bob syrup is poured into and mixed with the fondant).

This, as a rule, will result in a casting temperature ranging between 135° and 150°F., depending, of course, on the cooking temperature of the bob syrup and the amount of frappe used.

As mentioned before, we can make at least 10 or more different types of cast cream centers by making these changes in formulas. In order to limit our discussion, we are going to consider four type of cast cream centers and show how these changes are brought about. The consistencies which we will talk about will be short-heavy type, moderately soft but not flowing, soft to flowing, and short and light.

By glancing at the chart, you will note that we have brought about changes in textures of the cream centers by using different amounts of corn syrup and sugar in the bob syrup, and varying the cooking temperature, also by the addition of larger or smaller amounts of frappes Nos. 1, 2, or 3.

We will take each formula and discuss it individually and show how these changes are brought about.

#### Formula No. 1—Short-heavy type.

We place 100 lbs. of fondant into a melting ket-

Four Types of Cast Cream Centers

Formula No.	Consistency	Basic Fondant	Bob Syrup			Cooking Temp.	Frappe	Invertase (Convertit)	Casting Temp.
			Sugar	Corn Syrup	Water				
1	Short Heavy Type	100 lbs.	45 lbs.	5 lbs.	12 lbs.	236° F.	No. 1-8 lbs.	1½ ozs.	145° F.
2	Moderately Soft-Not Flowing	100 lbs.	35 lbs.	15 lbs.	10 lbs.	234° F.	No. 1-15 lbs.	2 ozs.	140° F.
3	Soft To Flowing	100 lbs.	40 lbs.	10 lbs.	10 lbs.	232° F.	No. 1-10 lbs.	2 ozs.	145° F.
4	Plastic and Light	100 lbs.	35 lbs.	15 lbs.	10 lbs.	236° F.	No. 3-35 lbs.	2 ozs.	140° F.

## People who use pecans for profit...



**Because:** they're high oil content pecans—bright, full-meated and firm, with the delicate flavor of freshly shelled pecans.

**Because:** every pound of Fleischmann's is a pound of quality pecans, the pick of the pecan meats, rigidly graded to specification.

**Because:** they're backed with the kind of service which has earned Standard Brands a prestige reputation in the food field.

## specify Fleischmann's *Fancy* Pecans

Standard Brands Incorporated—Branches in All Principal Cities

tle, and warm it to approximately 120°F. Meanwhile, we prepare a bob syrup consisting of:

45 lbs. Sugar  
5 lbs. Corn Syrup  
12 lbs. Water

which is cooked to approximately 236°F. This is promptly poured into and mixed with the fondant. Add 8 lbs. of frappe No. 1, flavor and color; mix well, then add at least 1-1/2 ozs. of invertase (Convertit); mix thoroughly, and cast into starch impressions.

Referring to formula No. 2, we can make a moderately soft, not flowing type of center by using the same amount of basic fondant; in the bob syrup, however, we reduce the amount of sugar to 35 lbs. and increase the corn syrup to 15 lbs. The amount of frappe No. 1 used is also increased to 15 lbs.

A shorter and lighter center can be made by using 15 lbs. of No. 2 frappe and leaving the other materials in the same quantities.

In order to produce a rather soft to a flowy cream, we refer to formula No. 3. Again we used 100 lbs. of basic fondant and in the bob syrup we used 40 lbs. granulated sugar and 10 lbs. of corn syrup. Here we cooked the bob syrup to only 232°, which leaves an increased amount of water in the batch. The amount of frappe No. 1 used is only 10 lbs.

Finally, in order to produce the plastic and light cream center, as in formula No. 4, we again used 100 lbs. of basic fondant; in the bob syrup 35 lbs. of granulated sugar, 15 lbs. of corn syrup, 10 lbs. of water, and cook this to 236°. Finally, we add 35 lbs. of frappe No. 3, which is the lightest frappe we have. This will, of course, make the cream center very light in texture.

From this you can see that many different types of cast cream centers can be made by making adjustments in the bob syrup, in the cooking temperature, and in the amount and type of frappe used.

The percentage of water that may be present in the syrup portion of the cream center is of the utmost importance as upon this factor will depend whether the cream centers will or will not ferment.

The percentage of water present in the syrup portion of the centers as made with formula No. 1—short-heavy type, will be 25-26% of water or 74-75% solids in the syrup portion.

We know from experience that cream centers having a syrup of such a low density will ferment, and that cream centers of a higher density (79% or more) are less liable to ferment, and that cream centers having a syrup of 80% density are practically immune to fermentation.

That is why we add invertase as it increases the density of the syrup to a point where danger from fermentation will be practically eliminated.

*This paper was read at the March 10th meeting of the New York Section of the American Association of Candy Technologists.*

for April 1960 — 57

## Which

one is the imitation?

You cannot know the natural from the imitation by appearance, color or taste... You can only GUESS!



You, yourself, can prove the practical advantages of

### FLORASYNTH'S amazing new RASPBERRY IMITATION SPECIAL

with the very first test gallon you use... it is rightfully compared to Nature's best... reflecting the sheer skill of our flavor craftsmen in its lasting, highly effective and economical utility... Sample upon request.

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### the "12" line. IMITATION CONCENTRATED CANDY FLAVORS

Apple	Honey
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Blackberry	Peach Blossom
Butter	Pear
Butter Scotch	Pineapple
Cherry	Potatoe
(Tame)	Plum
Cherry (Wild)	Raspberry
Coughdrop	Root Beer
Cranberry	Rum and
Currant	Butter
(Black)	Strawberry
Currant (Red)	Tutti Frutti
Grape	Walnut
Grape (Candied)	(Black)
Greenapple	Walnut
	(English)

Discover for yourself why FLORASYNTH FLAVORS have so much more buyer appeal, more exacting qualities and so much more dependability... Just one call to your nearest FLORASYNTH office brings continued satisfaction.



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Stop at Florasynth's Exhibit (Booth No. 24, 25) Institute of Food Technologists annual meeting May 13-19, Masonic Temple, San Francisco, Calif.





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top-selling 10¢ bars  
have in common?



the nutty-rich  
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**Almonds**

People have a habit of coming back  
for quality confections—like candies  
made extra-good with almonds.  
That is why almond candies are  
consistently on the best seller lists,  
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Quality candy, of course, should  
begin with quality ingredients.  
That's why it always pays to specify  
*Blue Diamond Almonds* when you  
order. Blue Diamond Almonds are  
California's best—scientifically  
graded, carefully inspected and  
packed. You'll find them plentiful—at  
favorable prices—right now.  
Order in plenty!

**Blue Diamond Almonds**

Today's low cost way to add  
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CALIFORNIA ALMOND GROWERS EXCHANGE  
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Give your Candy the added  
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Coatings—a quality you will  
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For Flavor  
Distinction  
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**MIL-LAIT™**



ENZYME MODIFIED WHOLE MILK POWDER  
Adds "Sell"—because All America Loves It

MIL-LAIT helps you to produce the "million dollar" flavor in  
chocolate that has become the success mark of large manufac-  
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28½% butterfat, whole milk powder, is needed as a partial replace-  
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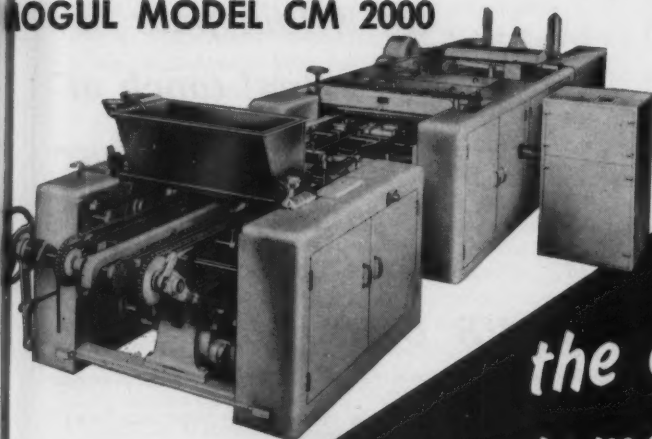
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A completely new concept  
of high speed, precision,  
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**"STAGGERED ROW"  
DEPOSITING SYSTEM**

National Equipment has been proved by the  
only real test... years of tested and proven  
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where the demand for top efficiency and top  
quality is a must.

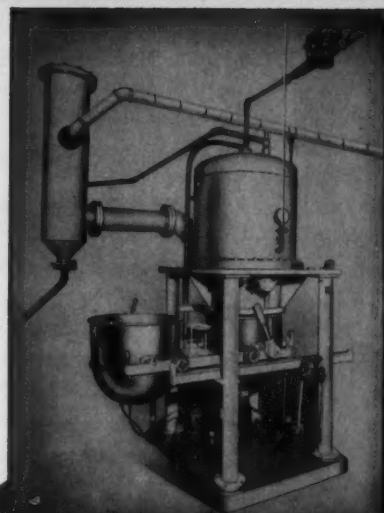
These candy manufacturers will tell you, "You'll  
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**KING SIZE MODEL**  
Up to 3,000 lbs. hourly production

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Up to 2,500 lbs. hourly production



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good taste to your  
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## NEWSMAKERS

Dairyland Food Laboratories has announced the appointment of **Fred Arnold** as sales manager of the firm. Mr. Arnold has been sales manager of the dairy division of Dairyland Food Laboratories since 1958.

**H. Kohnstamm & Co., Inc.** has named **Andrew J. Torter** assistant sales manager of the color and flavor divisions.

**Raymond L. Bell** has been appointed film engineer for the packaging division of **Olin Mathieson Chemical Corporation**. The film operations cover the production and sale of Olin cellophane and Olin polyethylene.

**A. E. Staley Manufacturing Co.** has named **Wendell D. Ray** an industrial sales manager. For the past two years Mr. Ray has been branch manager of the company's Boston office. **George M. Donelan** will be manager of the Boston office, filling Ray's position. Two new assistant branch managers have been named by Staley. They are **Alfred W. Brunlieb** in the Cleveland office and **Donald M. Baldwin** in St. Louis. **Earl H. Schrader** has been named manager of the company's Kansas City industrial product sales office. The appointment of a new manager of the process service section was also announced. **Byron L. Fast** who joined Staley fifteen years ago has been production engineer in this special engineering and service organization which was set up last April.

**American Molasses Company** has announced the appointment of **Mr. Frederic J. Janssen** as chief candy technologist in the technical services department. In this capacity Mr. Janssen, who is well known in the candy field, will handle service work of the confectionery industry.

**James P. Gray** has been appointed eastern manager for the **Merckens Chocolate Division** of Consolidated Foods Corporation. Mr. R. E. Chumasero, Jr., is resigning effective April 1st. He plans to follow his hobbies and his special personal business interests. Mr. Gray moves to New York from Boston, where for the past six years he has been manager of the New England territory.

**Robert Elias** has been appointed sales manager for **Felton Chemical Company**. Mr. Elias will be in complete charge of all domestic sales activities.

ALWAYS AT YOUR SERVICE

In Cocoa Since 1899

**EMIL PICK CO.**

COCOA BROKERS

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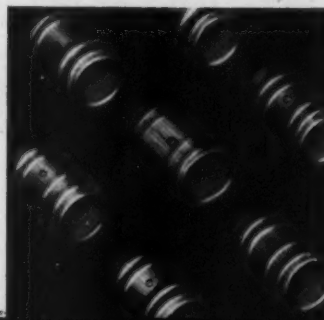
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Cocoa and Chocolate Products

Finest  
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**ROOT BEER BARRELS**

for 1/5¢ PER POUND FLAVOR COST

1 TO 1½ OUNCES TO 100 POUNDS

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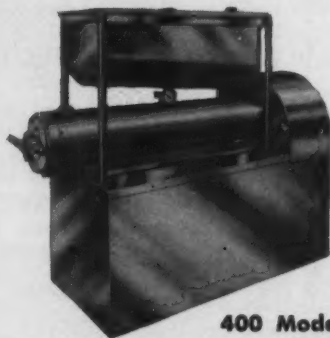
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Please send information on the Master Model and the new "400" model, to

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## THE MANUFACTURING CONFECTIONER'S CLEARING HOUSE

Address replies to box number, c/o The Manufacturing Confectioner  
418 N. Austin Blvd., Oak Park, Illinois

### MACHINERY FOR SALE

For sale: Gas vacuum cooker, cream beaters, chocolate melters, stoves, cut roll machines, batch rollers, steam agitating kettles, water cooled slabs, marbles, Hobart beaters, copper kettles, cutting machines, etc. S. Z. Candy Machinery Company, 1140 North American Street, Philadelphia, Pennsylvania.

### FOR SALE

Bonus Cluster Machine  
Model K #3 Savage Fire Mixers.  
20 gal. & 50 gal. Model F-6 Savage  
Tilting Mixers, copper kettle.  
200 lb. Savage Oval Top Marshmal-  
low Beaters.  
Cut-Rol Cream Center Machines.  
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1000 lb. Werner Syrup Cooler.  
150 lb. to 500 lb. Chocolate Melters  
24" and 32" N.E. Enrobers.  
Simplex Gas Vacuum Cooker.  
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Savage Cream Vacuum Cooker.  
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6" and 7" York Batch Rollers.  
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Ball and Dayton Cream Beaters.  
30 Gal. Stainless draw off steam  
jacketed kettles.  
350 lb. cap. Resco chocolate melt-  
ing and tempering kettle.  
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We guarantee completely rebuilt.

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Complete with cooler and tunnel. In  
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grove 42-B 3/4x3/4x5/16 fold wrap. Box  
4606, The MANUFACTURING CON-  
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Attention candy manufacturers located  
Florida area, we have chocolate coat-  
ing machine for all coating needs includ-  
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Machinery, P. O. Box 1571, Ft. Lauder-  
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Forsella Plaswrap for the continuous  
manufacture of hard candy. Unit con-  
sists of batch rollers, sizing unit and  
dies, cooler and 42c wrapping machine.  
Output of completely wrapped sweets  
varies between 250 minimum and 500  
maximum. Can be supplied with jam  
pump. Rose 500 cut and twist-wrap ma-  
chine with vertical batch feeder fully  
automatic, piece size 1 1/4" x 1/2" x 1/2".  
Rose 500 cut and twist-wrap machine  
with batch rollers and pre-sizer, fully  
automatic, piece size 1 1/2" long x 1 1/2"  
dia. Reply speedily to D. C. & Young  
(Engineers) Ltd., 6 Argall Avenue, Ley-  
ton, London, England.

For sale or lease: New hard candy  
whistle machines. Production capacity  
approximately 5,000 per hour. High  
profit item. Price \$5,000 includes 17  
foot cooling tunnel. 50% down with  
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also available on lease basis. Box 4601,  
The MANUFACTURING CONFECTIONER.

Friend cut roll machine, Corley Miller  
overwrap machine with sheeter. Re-  
volving pan for making cordial cherries,  
Savage breakback mixer, nut roaster,  
Mills continuous cutter. Bud Candy Co.,  
208 W. St. Clair, Cleveland, Ohio.

Model "C" Trans-Wrap with electric eye,  
volumetric feed; Forgrove 42-C, cylin-  
drical piece; 600 lb/hour N.E. hard can-  
dy cooker. Box 4605, The MANU-  
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Two (2)-22-B wrappers. One (1)-Hays-  
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### HELP WANTED

First-class man to run Chocolate Depart-  
ment for large nationally known candy  
manufacturer. Essential to have man  
with wide experience and intimate  
knowledge of latest chocolate making  
equipment. Only top man with excellent  
experience and references need apply.  
Salary commensurate with qualifications  
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Large general line manufacturer, plan-  
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Please furnish complete details of edu-  
cation, experience and present earnings.  
Replies will be held in strict confidence.  
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### SITUATION WANTED

22 year old son of Austrian business man  
seeks suitable post in the USA starting  
Autumn. Has passed exams as confec-  
tioner and chocolate maker, graduate of  
German Industrial School. Excellent ref-  
erences from leading German companies.  
Some knowledge of English. Prefer New  
York or California location. Box 4602,  
The MANUFACTURING CONFECTIONER.

### MACHINERY WANTED

Will purchase for cash: 3 Package Ma-  
chines, DF Wrapping Machines. Give  
age, serial numbers, also information  
concerning heating attachments and seal-  
ing attachments as well as price in  
your reply. P. O. Box 720, Atlanta 1,  
Georgia.

### MISCELLANEOUS

For sale—one completely equipped candy  
factory with building. J. P. Flanagan,  
Dorr Candies, 824 Morningside Avenue,  
Sioux City 6, Iowa. Phone No. 6-5691.

### New Classified Rates

Lightface type—10¢ per word  
Boldface type—20¢ per word  
Box number—\$1 additional  
Minimum charge—\$2.50  
10% discount for advance  
payment.

Classified display adverti-  
sing is charged at the rate of  
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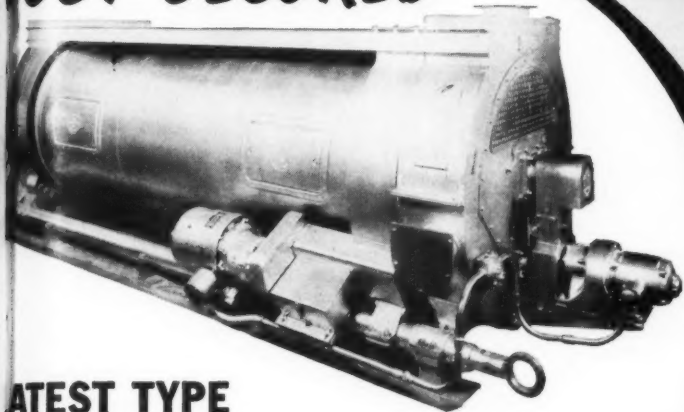
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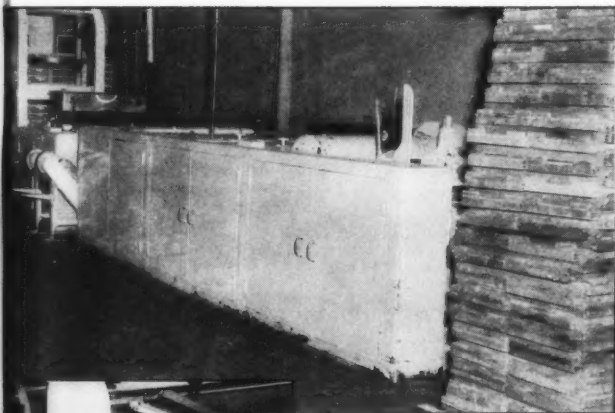
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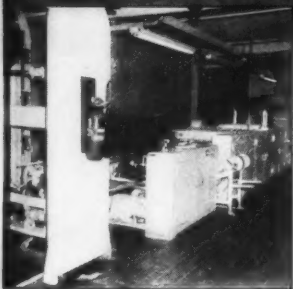
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Starch Dryer and Cooler  
PRACTICALLY BRAND NEW**

This is an unbeatable combination...  
the Huhn Dryer and Cooler Unit and-  
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Starch Cleaner and Currie  
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Loader.



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CONFECTIONERY MACHINERY CO., INC.

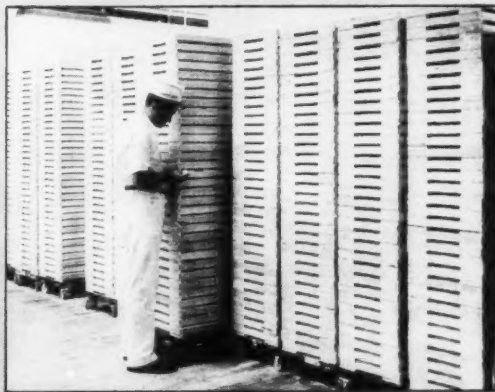
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**BE**  
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The *ultimate* in  
an unbeatable  
combination...

**ALSO AVAILABLE**



18,000 Starch Trays with masonite  
bottoms. Almost new.  
325 Currie Dollies.

*This Offering Is Subject  
To Prior Sale  
Act Now!*

**UNION**

Rebuilt  
Machinery

Established 1912





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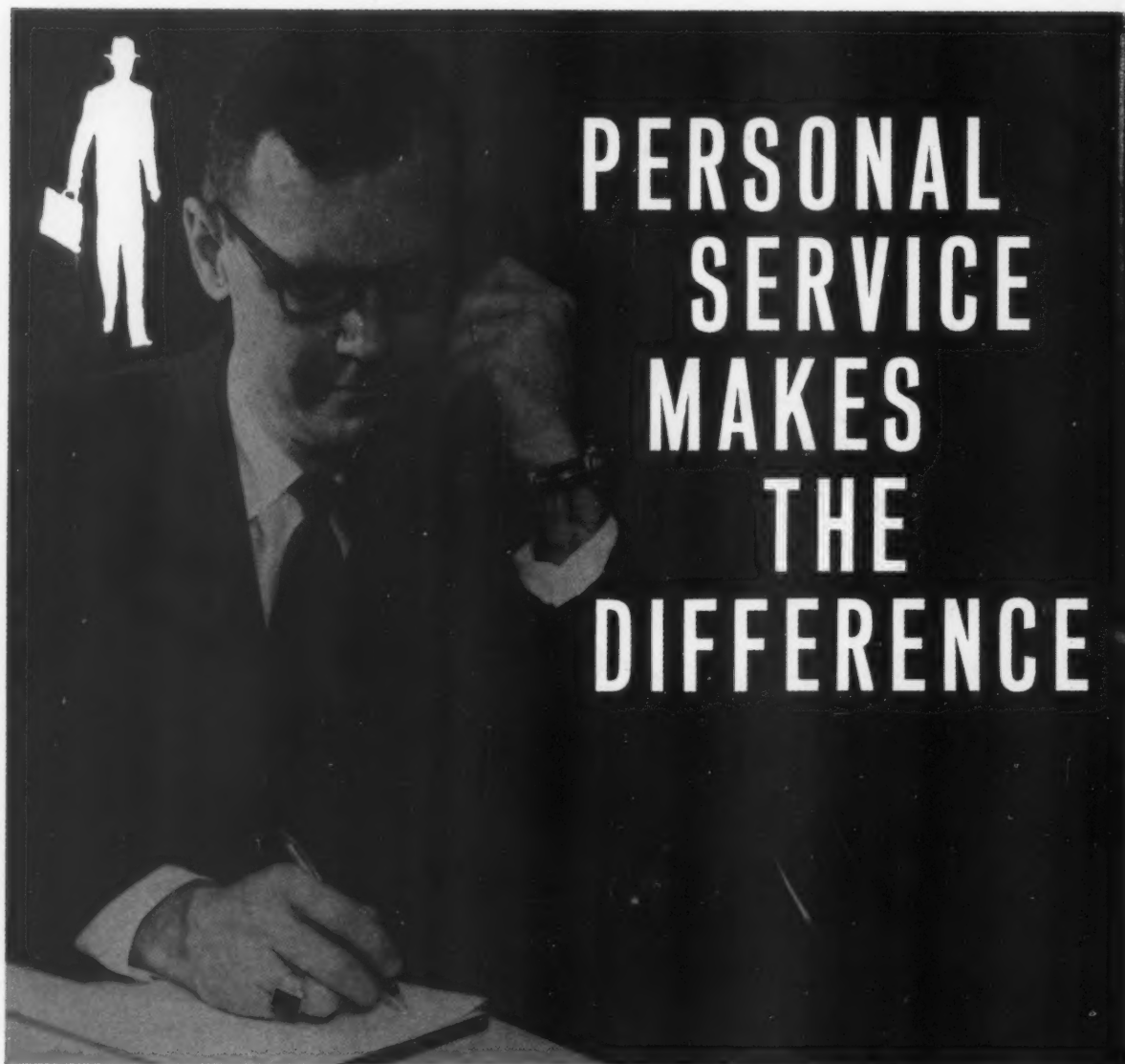
flavor makes chocolate chocolate and vanilla vanilla. D&O can make your chocolate even chocolatier! and your cherry or orange as fresh as if they were still trembling on the bough.... Consult D&O.

180 VARICK STREET • NEW YORK 14, N.Y.

**DODGE & OLCOTT, INC.**

ESSENTIAL OILS • AROMATIC CHEMICALS • FLAVOR BASES • DRY SOLUBLE SEASONINGS





# PERSONAL SERVICE MAKES THE DIFFERENCE

***Call the man from Hubinger...***

How long does it take you to make a phone call? That's how close you are to help, when candy making problems come up. All you need to do is call the man from Hubinger... He brings with him the benefit of over three-quarters of a century of working first-hand with candy manufacturers all over the country. He can help you, too, whether you're primarily concerned with problems of taste, texture, shelf life... or, in-plant troubles such as foaming, crystallization, materials handling and the like. Don't wait until you have trouble. Call the man from Hubinger, NOW. You'll like his practical, sleeves-rolled-up approach. His kind of personal service... makes your product even better!



- CONFECTIONER'S CORN SYRUP
- DRI-SWEET CORN SYRUP SOLIDS

OK BRAND Confectioner's Corn Syrup is economical... saves time because it's easy to handle... cooks rapidly without foaming. Makes your candy taste better because it maintains the proper moisture needed for long-lasting freshness. Prevents crystallization, and is the same dependable quality, lot after lot. You can also get OK BRAND Corn Syrup in dehydrated form. This product, OK BRAND Dri-Sweet Corn Syrup Solids, is ideal for use in formulas that need less cooking. It, too, gives you high quality consistently.



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